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ANTEPARTUM HAEMORRHAGE

F. N. Charnock, M.B., Ch.B., M.R.C.O.G.

Senior Lecturer and Obstetrician and Gynaecologist, University of Cape Town and Cape Provincial Administration

Antepartum haemorrhage is defined as bleeding from the genital tract occurring at any time between the 28th week of pregnancy and the delivery of the child. It is a condition of major importance in obstetrics and still, in spite of marked improvement in treatment, ranks as the fourth commonest cause of maternal deaths in many published figures.[1] Improvement in treatment has resulted in a fall of maternal mortality from 5-7% in 1939 to under 1% at present, but foetal wastage, although it has dropped from 60% to 20% and under in the same time, is still very high, particularly so in accidental haemorrhage.

Causes

The causes of antepartum haemorrhage are as follows:

1. Accidental haemorrhage, in which bleeding occurs from the site of a normally situated placenta.
2. Placenta praevia, or so-called unavoidable haemorrhage. Here the placenta is attached partially or wholly in the lower uterine segment.
3. Associated causes, such as varicose veins in the vagina, carcinoma of the cervix, vasa praevia, and circumvallate placenta.
4. In a large group of cases the cause is never definitely diagnosed. These are frequently classified as accidental haemorrhage. This group may constitute as much as 40% of all cases of antepartum haemorrhage.

Symptoms and Signs

The bleeding occurring in placenta praevia is characteristically painless, causeless, and bright red in colour; it often occurs while the patient is at rest. It usually stops spontaneously, only to recur at a later date. The first warning bleed may be slight but the loss tends to increase at each recurrence. On palpation, a high presenting part cannot be made to engage and a slowing of the foetal heart rate may be associated with the attempt. Occasionally an anterior placenta praevia may be felt to obscure the presenting part. The foetal heart is usually audible.

In accidental haemorrhage pain is often present and the bleeding may be dark in colour. In many cases an associated toxaemia of pregnancy or hypertension is present or there may be a preceding history of trauma such as external version. On palpation uterine tenderness may be found, and if the presenting part is not engaged, it can be made to do so. In the severer cases foetal heart sounds are often absent. In the severer types, too, the patient will be extremely shocked and the shock will be out of all proportion to the external blood loss. Unfortunately, in many cases the diagnosis between accidental haemorrhage and placenta praevia, on the clinical features just mentioned, is not clear cut.

In some cases of placenta praevia the placenta, though large, may be very thin and the presenting part may be engaged. Toxaemia of pregnancy can occur with placenta praevia, and if the patient is in labour she may have pain. The trauma of intercourse can also cause bleeding in a case of placenta praevia. What is more, an accidental haemorrhage may occur in a patient whose placenta is situated 'praevia'.

A definite diagnosis of placenta praevia can only be made by feeling (on vaginal examination) the placenta in the lower segment, or at Caesarean section. In the presence of antepartum haemorrhage, however, vaginal examination should only be carried out in an operating theatre with everything prepared for section.

A large number of cases, as stated above, fall into the 4th category, where a definite diagnosis is not made. These cases are often included in the group of accidental haemorrhage, the diagnosis being determined by the probable exclusion of placenta praevia. The haemorrhage is often only slight in these cases and as a result there has been a tendency to neglect this group. Macafee[3] and Donald[2], among others, have recently shown that the foetal loss is comparatively high and that more attention should be paid to these patients.

TREATMENT

Antenatal Care

As in all obstetrical conditions, good antenatal care is of primary importance. It has helped to reduce both the maternal and foetal mortality from antepartum haemorrhage. Antenatally, every pregnant woman should have blood examinations made and Rh grouping done. Routine haemoglobin estimation will ensure that no anaemia is present to exaggerate the effects of a possible antepartum haemorrhage. The early treatment and diagnosis of hypertension and associated conditions in pregnancy will tend to minimize the chances of accidental haemorrhage occurring. Abnormal presentations, particularly in a primigravida, should suggest the possibility of placenta praevia. Stallworthy[4] has shown the importance of a high presenting part which cannot be made to engage. In such cases, with radiological

help, he succeeded in diagnosing 16·5% of his cases of placenta praevia before bleeding had even occurred.

Treatment at Home

If the practitioner is summoned by telephone, he should instruct the patient to remain in bed while awaiting his arrival. She should retain all evidence of the amount of blood lost. Unless the bleeding has been slight, she should be given ¼ gr. of morphine. After a pertinent history-taking the patient's general condition should be assessed in the usual manner. Gentle abdominal palpation is carried out to observe any abnormal lie, uterine contractions, tenderness, or rigidity. The foetal heart should be auscultated. It is a basic principle that all cases of antepartum haemorrhage, wherever possible, should be admitted to an institution.

Another basic principle is that no vaginal examination should be made in such cases outside a fully prepared theatre, for it often precipitates a serious and possibly catastrophic haemorrhage. Two exceptions to this rule are (*a*) when there is no theatre and (*b*) when the haemorrhage is so brisk that immediate action is called for.

If the patient is suffering from shock, this should be treated and, where available, the emergency obstetrical service, or 'obstetrical flying squad' should be summoned before transfer to hospital. Blood transfusion, if necessary, can then be started before the patient is moved. Fortunately, bleeding so severe and persistent as to prevent transfer of the patient is extremely rare and if it occurs it is usually due to unwarranted vaginal examination. However, if it does occur, and possibly if the practitioner is a great distance from the nearest hospital, the membranes should be ruptured an either a vulsellum applied to the head of the foetus or a leg brought down.

Treatment in the Institution

On admission to hospital, the patient must immediately have her blood group and Rh checked and compatible blood must be kept at hand. If necessary, blood transfusion is given. A general abdominal examination should again be gently made. In most cases the bleeding would have stopped and the patient should be kept under observation. Usually 2 days after the cessation of bleeding a speculum can be passed and any local pathological condition of the cervix and vagina excluded. This can be done sooner if the bleeding has been very slight, but rough handling may precipitate further bleeding.

If the foetus is not yet considered viable and the bleeding has stopped, then so-called expectant or conservative treatment is carried out. This modern form of treatment has as its object the final delivery of a foetus which stands a good chance of survival and one tries to tide the patient over till 37 or 38 weeks. Unfortunately, conservative treatment, although it has helped to improve both foetal and maternal mortality, compels the patient to spend many weeks in hospital, and then at the end one may find no placenta praevia has been present. It is hoped that improved radiological diagnosis of placenta praevia—so-called placentography—may in the future be of greater help in eliminating this disadvantage. However, the placenta may appear low-lying at the 30th week and yet not be so at the 36th or 38th week.

Expectant treatment, however, is not carried out if (1) the haemorrhage persists, (2) the patient is in labour, (3) the foetus is considered viable, or (4) the foetus is dead or distressed.

In these cases the patient is examined vaginally under anaesthesia in the theatre with everything prepared for possible Caesarean section. Lower-segment section is carried out immediately if:

1. A central or complete type of placenta praevia is found, or

2. The placenta, though not covering the internal os, lies posteriorly over the promontory of the sacrum preventing engagement or interfering with the blood supply to the foetus by compression of the placenta between the presenting part and the promontory.

In other cases of the incomplete type all that may be necessary is artificial rupture of the forewaters. However, if, in spite of this, bleeding persists, and particularly if the patient is not in labour or is a primigravida, Caesarean section is the safer procedure. Watch should always be kept on the foetal heart, for foetal distress may also necessitate immediate delivery. If a placenta praevia is not felt and bleeding does not ensue, the patient is returned to her bed. After 24 hours, if labour has not commenced, she may be discharged.

The old treatment of bringing down a leg and controlling the bleeding with the half breech is now rarely employed owing to the very poor foetal results. It may be indicated in an emergency where severe bleeding is present and facilities for immediate section are not available, or when the child is already dead or so premature as to have no chance of survival.

If the placenta is anterior, it may be incised during the Caesarean section. The baby must be examined for anaemia immediately after delivery. To try and minimize foetal blood loss the cord should be clamped as soon as possible.

Accidental Haemorrhage

Many slight cases of accidental haemorrhage are treated in the first instance as suspect cases of placenta praevia and only diagnosed as presumed accidental haemorrhage, or put in the undiagnosed group, when placenta praevia has been excluded on vaginal examination. These haemorrhages are often single and there is only a slight tendency to recur. Sedative treatment and rest is all that is necessary. In more severe cases there will be abdominal tenderness and tenseness and a varying degree of shock. In the typical severe type the revealed bleeding may at first be only very slight and the shock is out of all proportion to the external blood loss. In these cases it is imperative first to treat the patient's general condition. Toxaemia of pregnancy or hypertension is often present and the blood-pressure reading may be misleading. If blood transfusion is required, great care must be taken with compatibility tests and fresh blood is preferable. Pulse rate, blood pressure and urinary output are charted. The height of the fundus is noted and the girth measured. Thus any increase in size of the uterus can be observed. It is important to note whether the patient's blood clots and if there is any doubt the blood fibrinogen should be estimated.

Most obstetricians now agree that once treatment for shock has been instituted, vaginal examination should be made and the membranes ruptured. Theoretically rupture of the membranes diminishes the chance that fibrinogenopenia will develop and also usually accelerates delivery.

Caesarean section is carried out in those rare cases which do not respond to this treatment. As the foetal mortality is so high, many authorities also advise its use if the foetal heart is still audible—particularly if the patient is a primigravida and the cervix only slightly dilated. It is hoped that with our recently acquired knowledge of fibrinogen therapy, Caesarean hysterectomy for persistent bleeding, even after the uterus has been emptied, may very rarely be necessary.

In all cases of antepartum haemorrhage the third stage must be conducted with great care, for further haemorrhage at this stage may be the last straw. In the severer cases of accidental haemorrhage one must, after delivery, still be on the watch for serious renal damage, as evidenced by oliguria.

CONCLUSION

The value of good antenatal care must again be emphasized, and the early admission to hospital of all cases of antepartum haemorrhage cannot be over-emphasized.

The figures at our maternity hospitals in Cape Town (Table I), and figures elsewhere, all show the far higher incidence and higher foetal and maternal mortality in unbooked cases who have not received proper antenatal care. The excellent results which have been published by Macafee, Stallworthy and others have only been obtained through thorough care of the patient both outside and inside the hospital.

TABLE I. CASES OF ANTEPARTUM HAEMORRHAGE DEALT WITH IN 1956 BY THE MATERNITY INSTITUTIONS UNDER THE AEGIS OF THE UNIVERSITY OF CAPE TOWN

	Cases	*Maternal Deaths*	*Total Foetal Loss*	*% Foetal Loss*
Booked Cases ..	163	0	26	16
Emergency Cases ..	184	0	93	51
Total	347	0	119	34

Finally, one must again stress the danger of vaginal examination in the patient's home. That this danger is still not fully recognized is shown by the number of patients admitted for antepartum haemorrhage who have been subjected to vaginal examination before admission.

REFERENCES

1. Stabler, F. (1955): Brit. Med. J., **2**, 290.
2. Donald, I. (1955): *Practical Obstetrical Problems*, p. 207. London: Lloyd-Luke Ltd.
3. Macafee, C. H. G. (1945): J. Obstet. Gynaec. Brit. Emp., **52**, 313.
4. Stallworthy, J. (1951): Proc. Roy. Soc. Med., **44**, 121.

BLOOD-ALCOHOL CALCULATIONS BY INSTRUMENT

P. K. VAN GENT, M.Sc., D.ING., *Division of Chemical Services, Port Elizabeth*

In previous articles[1,2] I explained a comparatively simple formula by means of which it is possible to calculate the volume of alcohol absorbed in a human body from body weight (lb.) and blood-alcohol % w/v. A formula such as this which, in reality, is a derivation of the internationally acknowledged Widmark formula,[3,4] is liable to encounter certain obstacles in a court of law. Under cross-examination the district surgeon might be asked to explain its derivation in detail, and this requires memorizing of the facts and the application of algebraic equation.

Even the original Widmark formula requires manipulation, because the concentration of alcohol is stated as 'mg. alcohol per g. blood', while analytical reports give this concentration as 'blood-alcohol % w/v', i.e. g. alcohol per 100 ml. blood.

$$\text{(mg. alcohol per g. blood} = \frac{10 \times \text{blood-alcohol \% w/v}}{1{\cdot}056}$$

where 1·056 equals the average S.G. of blood.)

Closer consideration of Widmark's formula is necessary in order to clarify some of its aspects. It states that the number of g. of alcohol in a body equals the body weight in kg. multiplied by the concentration of alcohol in the blood, expressed as mg. alcohol / g. blood, multiplied by a factor 'r', i.e. the ratio between the concentration of alcohol in the body to that in the whole blood.[4] It is also stated[3] that 'r' is the ratio in weight between soft tissues and body. Herein then lies the true medical function of this formula, because it is the responsibility of the district surgeon to decide what the value of the factor 'r' is to be.

For purposes of calculation, 'r' is generally taken to be 2/3 or 0·67.[3,4] In his research Widmark[5] found that for spirits this factor in males varies between 0·60 and 0·76 and in females between 0·50 and 0·60. If these Widmark factors are taken into consideration, it would seem more

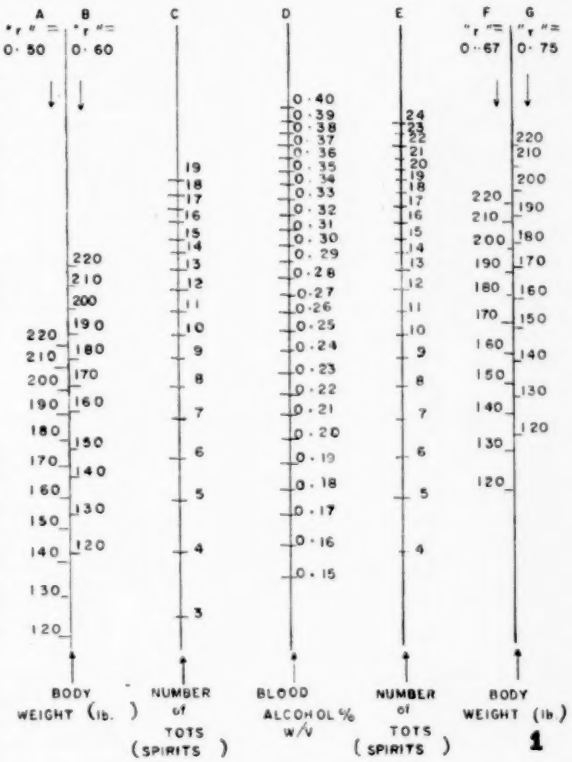

Fig. 1

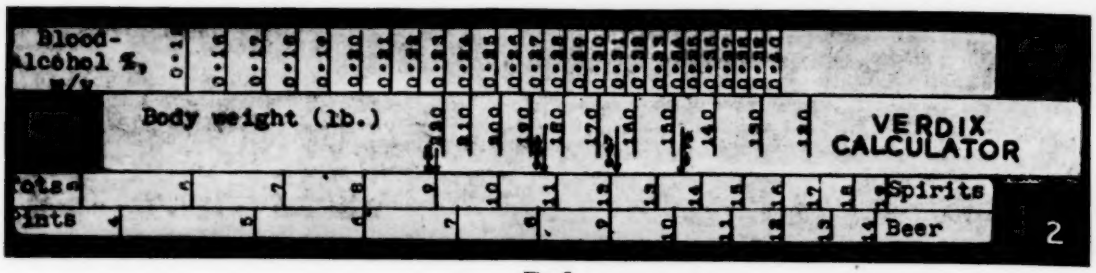

Fig. 2

appropriate to use the following values for spirits when calculations are made:

'r' = 0·60 (males); 'r' = 0·50 females

By so doing one is assured that only the absolute minimum amount of alcohol consumed is accounted for. This point of view is by no means novel, for it is actually suggested by the British Medical Association.[5] (For ease of calculation, the following values for 'r' were suggested by the Government Pathologist: minimum $\frac{1}{2}$, average $\frac{2}{3}$ and maximum $\frac{3}{4}$; in other words, 0·50, 0·67 and 0·75).

For the purpose of rapid calculation it was realized that various values could be placed in tabular form, i.e. plotting blood-alcohol % w/v against body weight (lb.), with the horizontal and perpendicular lines of intersection crossing each other at values denoting absorbed alcohol in weight[4] or in volume.[2] But this would provide no compromise between the use of a formula already established and one derived from the former. Moreover, a similar tabulation would have to keep count with 4 values for 'r', viz. 0·50, 0·60, 0·67 and 0·75, and would require 4 tables.

By means of a nomogram (Fig. 1), it is possible to avoid the use of these 4 tables. Here a straight line between blood-alcohol % w/v (scale D) and body weight (scales A, B, F and G respectively for 'r' values of 0·50, 0·60, 0·67 and 0·75) will intersect scale C or E, indicating the number of tots (spirits) consumed, i.e. alcohol absorbed by the body tissues and expressed in tots. Consider the following examples:

'r' = 0·50 (scale A); blood-alcohol = 0·23% w/v (scale D); body weight = 170 lb. This line intersects scale D at a value which is slightly less than 7 tots.

'r' = 0·67 (scale F); blood-alcohol = 0·27% w/v (scale D); body weight = 150 lb. This line intersects scale E at a value which is slightly less than 10 tots.

However, it will be realized that the use of a nomogram for the purpose of rapid calculation required in a witness box, is not very satisfactory and hence it was decided to construct a simple instrument as shown in the photograph.

Verdix Calculator

The 'Verdix' calculator (Fig. 2) resembling a small slide rule, has a size of only 7 × 1½ inches. The top scale, denoting blood-alcohol % w/v, is calibrated from 0·15 to 0·40 because it was found that a large portion of results from the chemical analysis of blood gave values between 0·20% and 0·30% alcohol, w/v. The bottom scale is especially calibrated for South African conditions, because a 'tot' is legally defined as one-quarter gill or 1¼ fl. oz.[6] and spirits as having a minimum alcoholic strength of 25° under proof or approximately 43% alcohol by volume.[7] Similarly a light beer such as Lager or Pilsener contains about 3·5% of alcohol by volume.[4] In other countries this calibration would have to be changed; e.g. in Great Britain a 'whisky', i.e. a tot of whisky, has a volume of approximately 5/6 fl. oz.[5]

The centre, or sliding, scale is calibrated in lb. body-weight from 120 to 220, which should cover the weight of most individuals. This calibration can also be changed to kg. for countries where the decimal system is in use. Furthermore the sliding scale has 4 arrows, each of which represents a different value for 'r'.

The reverse of the calculator—not shown in the photograph (Fig. 2)—gives instructions for operating. Mention is made of the numbered arrows, as well as of the alcoholic strengths of spirits and beer.

Operation is carried out by bringing body weight into line with the value for blood-alcohol % w/v. The relevant 'r' arrow will then on the bottom scale show the number of tots of spirits or pints of beer containing the same weight of alcohol as that absorbed by the body at the time when the blood sample was taken. In the photograph one sees 0·24% blood alcohol w/v, in line with 210 lb. body-weight. By calculation it was found that such a body would then have absorbed an amount of alcohol equivalent to that contained in slightly more than 12 tots (taking 'r' as 0·67) or 9 tots (taking 'r' as 0·50). The readings given by the 'Verdix' agree with these values.

An instrument of this type need not necessarily be constructed so as to resemble a slide rule; a model, thin enough to be inconspicuous between the pages of a book, has been made of cardboard. The ideal construction would probably be a hexagonally shaped metal rod, about the thickness of a pencil, partly surrounded by a metal sleeve, with both sleeve and rod appropriately calibrated.

REFERENCES

1. van Gent, P. K. (1957): S. Afr. Med. J., 31, 728.
2. *Idem* (1957): *Ibid.*, 31, 1304.
3. Bamford, F. (1947): *Poisons, their Identification and Isolation*, p. 39. London: Churchill.
4. Gordon, I., Turner, R. and Price, T. W. (1953): *Medical Jurisprudence*, pp. 765 and 768. Edinburgh: Livingstone.
5. British Medical Association (1954): Report on *Recognition of Intoxication*.
6. Weights and Measures Act, No. 32 of 1922, amendment (1943): Govt. Notice No. 2048. Union Govt. Gaz., 12 November.
7. Wine, Spirits and Vinegar Act, No. 25 ,1957, ch. 2, sec. 8

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EDITORIAL : VAN DIE REDAKSIE

HEAT SPOTS

Papular urticaria (lichen urticatus, strophulus, prurigo infantum, etc.), popularly known as heat spots or teething rash (*feux de dents, zahnpocken*), is one of the commonest and most distressing diseases of infants and young children. The disease usually manifests itself in attacks lasting a few weeks to a month or two, but occasionally persists without complete remission. It begins in infancy and generally ceases to recur by the time the child is 5 years old, but may last longer in minor degree.

In an attack the rash appears in crops so that the established eruption shows a variety of lesions at all stages of development. The fresh lesion is a little round or oval, red urticarial wheal which resembles an insect bite. This may disappear in a day or two or subside to a papule, become vesicular or bullous, and eventually be covered by a scab. Healing may leave depigmented or hyperpigmented remains. Secondary impetigo is so frequent as to be almost part of the standard picture. The number of lesions varies between a few and many hundreds and, although they tend to be most profuse on the trunk, no area is spared invariably. Itching is severe especially at night, the child is restless and, in a severe attack, genuinely ill, particularly when severe dietetic restrictions have been imposed. Patients are referred to dermatologists under a great variety of provisional diagnoses, of which chickenpox, chronic impetigo, food allergy, and scabies are the commonest.

In all but the most recent text-books papular urticaria is usually described as a disease entity and reputed to be caused by food allergy, infection, or nervous instability. Rare observers of the past, such as Sir Jonathan Hutchinson, considered that the lesions not only looked like fleabites but were fleabites; these observers were scorned by their contemporaries.

Recent observations have shown, however, that most cases of papular urticaria are due to acquired sensitivity to the bites, or rather to the salivary secretions of certain insects, notably fleas and bedbugs. Blank *et al.*[1] tested 30 sufferers from papular urticaria with antigens for fleas and bedbugs and found 77% sensitive to one or both; only 2 of 124 normal controls were sensitive. Bolam,[2,3] in England, investigated the homes and the pets of affected children and found fleas (cat-fleas predominantly) in 27 of 40 cases studied.

Sensitivity to insect bites is an accepted phenomenon. Another example is urticaria multiformis endemica caused by phlebotomus bites. In the Middle East, where this condition is popularly known as *harara*, infants, immigrants and other non-immune adults develop a bullous or papular rash on exposed skin, and old lesions flare up when the patient is bitten afresh. Immunity is soon established and recurrences in the second or subsequent years are rare.

Acquired sensitivity to bites of parasites explains these points long observed in the natural history of papular urticaria: the disease is commonest and most severe in summer; admission to hospital is curative, but attacks begin again when the child returns home; the onset of disease may coincide with removal to a new house or complete change of environment may be curative; the poor are attacked more often than the rich, except in the Cape Peninsula, where the fleas do not distinguish between U and non-U! Reactivation of subsiding lesions often accompanies the appearance of fresh bites.

Papular urticaria in South Africa is commonly caused by fleas. Cases caused by bedbugs are distinguishable by the fact that lesions are usually fewer and tend to be bullous and haemorrhagic. The systematic use of insecticides such as DDT or BHC in the house, and pyrethrum for pets, is almost invariably followed by great improvement or cure. Details of disinfestation are given in articles by Bolam[2,3] and Rook and Frain-Bell,[4] but we have found that a liberal dusting of insecticide powder on the sheet on which the child sleeps is an essential manœuvre. DDT and BHC powder do not irritate the skin. When parents take umbrage at the suggestion that their child is flea-ridden, good results can still be obtained by prescribing the insecticide suspended in calamine lotion for application at bedtime.

1. Blank, H., Schaffer, B., Spencer, M. C. and Marsh, W. C. (1950): Pediatrics, **5**, 408.
2. Bolam, R. M. and Burtt, E. T. (1956): Brit. Med. J., **1**, 1130.
3. Bolam, R. M. (1958): Bull. Soc. franç. Derm. Syph., **65**, 388.
4. Rook, A. and Frain-Bell, W. (1953): Arch. Dis. Childh., **28**, 304.

WISSELSKAAL VAN LEDEGELDE

By 'n vorige geleentheid het die Federale Raad van die Mediese Vereniging 'n spesiale komitee saamgestel met die opdrag om die wenslikheid en uitvoerbaarheid van 'n wisselskaal van ledegelde vir definitiewe groepe lede binne die Vereniging, te ondersoek. Die Federale Raad het hierdie stap gedoen omdat hy begaan daarvoor is om aan alle groepe binne die Vereniging ten volle reg te laat geskied ten opsigte van hulle verpligtinge teenoor die Vereniging, veral met verwysing tot hul onderskeie finansiële verantwoordelikhede. Na deeglike studie en oorweging van al die feite tot hul beskikking, het hierdie komitee sy aanbevelings aan die Federale Raad voorgelê by geleentheid van sy onlangse sitting in Johannesburg van 8-10 April, en die Federale Raad het toe soos volg besluit:

1. Om dit goed te keur dat ledegelde vir huisdokters £2 2s. 0d. per jaar bedra.

2. Om dit goed te keur dat praktisyns gedurende die eerste twee jaar van hul praktyk na die huisdokterskap £2 2s. 0d. per jaar as ledegelde betaal. Dit geld vir geneeshere in die private praktyk sowel as in die hospitaalpraktyk.

3. Die ledegelde van afgetrede dokters wat nog lede van die Vereniging wil bly, sal £2 2s. 0d. per jaar beloop.

4. In gevalle waar die man sowel as die vrou lede van die Vereniging is, sal dit net van een lid van die paar verwag word om die volle bedrag van £4 4s. 0d. per jaar as ledegelde te betaal; die ander lid sal £2 2s. 0d. per jaar betaal.

5. Die ledegelde vir alle ander lede van die Mediese Vereniging sal £4 4s. 0d. per jaar bedra, afgesien daarvan of hulle in die algemene praktyk staan en of hulle in die een of ander voltydse hoedanigheid werksaam is.

Miskien sou dit goed wees om hierdie besluit van die Federale Raad van naderby te beskou. Daar was nog altyd die gebillikte beskouing dat voltydse personeel op die een of ander graad van voorkeurtariewe geregtig was by die vasstelling van ledegelde van die Vereniging—omdat dit in die verlede gevoel is dat die vergoeding van voltydse personeel oor die algemeen heelwat minder was as dié van algemene praktisyns. Met die onlangse algemene verhoging van salarisse het hierdie posisie nou egter verander. Die basis van besoldiging van voltydse mediese personeel in die verskillende munisipale en regeringsdienste, en op die universiteitspersonele, vergelyk oor die algemeen redelik goed met die netto inkomste van private praktisyns as 'n groep. Meer nog, die werk wat voltydse geneeshere in die verskillende voltydse diensafdelings doen, kan nie as aparte dienste beskou word nie. Die hele bolwerk van mediese dienste funksioneer as een onverdeelbare geheel. En die hospitaal- en ander gesondheidsdienste in ons land kan maar slegs voortgaan omdat hulle funksioneer teen die agtergrond van die buitepraktyk.

Ons wil hier 'n spesiale pleidooi lewer vir die nouer samesnoering van voltydse mediese werk en praktisynswerk binne die raamwerk van die Mediese Vereniging. Slegs deur gesamentlik ons verpligtinge na te kom as lede van 'n groot geheel, kan ons werklik 'n sterk en blywende organisasie opbou. Die hospitaalpraktisyn en die voltydse mediese beampte het die ondersteuning nodig van die algemene praktisyn en van die praktiserende spesialis. Aan die anderkant kan die praktisyn weer slegs op die volle hoogte van sake bly as hy gedurige kontak bewaar met sy kollega in die hospitaal. Dit sal baie goed wees as die verskillende Takke en Afdelings planne kan beraam om, meer as in die verlede, kollegas uit alle vertakkinge van voltydse werk, meer aktief in die werksaamhede van die Mediese Vereniging te betrek.

BASAL-CELL CARCINOMA: SPECULATIONS ON POSSIBLE FACTORS INFLUENCING ITS LOW INCIDENCE AMONG THE NON-EUROPEAN RACES IN SOUTH AFRICA*

JEAN WALKER, M.D. (CAPE TOWN), *Durban. Formerly of the Department of Dermatology, University of Cape Town and Groote Schuur Hospital, Cape Town*

Much has been written on the subject of solar radiation and skin cancer since Unna first described 'sailor's skin' in 1896. South Africa with its mixed population of all grades of complexion and colour provides a particularly interesting field of study.

Schrire[19-21] has recently described the activities and findings of a group of radiotherapists, surgeons, plastic surgeons, dermatologists and pathologists who conduct a Clinic at Groote Schuur Hospital, Cape Town, for the diagnosis, prevention and treatment of cutaneous neoplasms. At this Clinic we have been forcibly struck by the great rarity of basal-cell carcinoma in the coloured races. Of 1,193 cases of skin cancer seen in the 8 years from 1949-56, there were 489 European males and 338 European females with basal-cell carcinoma. There were only 61 non-Europeans with cancer of the skin and of these only 29 were cases of basal-cell carcinoma—10 males and 19 females. We had no albinos presenting with skin cancer though their complete lack of pigment should render them very susceptible, particularly if we can accept the theory which has hitherto appeared to satisfy everybody that pigment acts as a screen to ultraviolet light and thus protects people from cancer of the skin. Schrire,[21] however, points out that albino Africans seldom live long enough to reach the age for basal-cell carcinoma because they succumb at an early age to squamous-cell carcinoma.

Our records of cases of cancer of the exposed skin, like those of Hämäläinen[11] in Finland and Paul[16] in Australia, reveal that men, particularly those whose lives have been lived mostly out of doors by day, are far more frequently affected than women. European builders, surveyors, civil engineers, transport workers and policemen are very prone, but the most likely sufferer of all is the Afrikaner farmer, his preponderance of Dutch blood giving him a very fair complexion and his work exposing him throughout his life to the unkind rays of the South African sun.

The members of the Clinic subscribe to the view that the greater protection afforded to women's skins by brimmed hats, cosmetics and indoor occupations is a powerful factor in reducing the incidence of carcinoma amongst them. Gillman, Hathorn and Penn[8] have found that lanoline, a common constituent of cosmetic creams, seems to decrease the incidence of experimentally induced skin carcinoma. Hair protects the skin from irradiation, so that women, who are not ordinarily afflicted with baldness, do not develop basal-cell carcinoma on the scalp; by the same token, bearded men are spared these lesions on the lower portions of the face.

Basal-cell carcinomas tend to arise on sites where the sebaceous glands are most profuse, that is to say, on the scalp but only if it is denuded of hair, on the ears, the back of the neck, the malar regions, the nose and the chin. It is of interest to note that the photosensitivity diseases lupus erythematosus, pellagra and porphyria cutanea tarda also affect some or all of these same areas in people of all degrees of colour.

The neoplastic lesions found on the dorsa of the hands and on the lower lip, regions but poorly supplied with sebaceous glands, are almost invariably squamous-cell carcinomas, not

* Paper read at the South African Dermatological Congress, Johannesburg, 29 March 1959.

basal. Moreover, those parts of the face naturally in shadow, viz. the upper eyelids and the upper lip, shaded by the eyebrows and the nose respectively, are seldom involved. We have never seen basal-cell carcinomas on the palms or soles, areas completely devoid of sebaceous glands, though these have occasionally been described.[15]

Most patients, by the time they seek treatment at the clinic, show on the exposed parts the atrophy, dryness and telangiectasia so characteristic of 'sailor's skin', but a number give a history of acne in youth and, indeed, still show evidence of sebaceous overactivity in the form of seborrhoea capitis, seborrhoeic warts, acne scars and sebaceous cysts. I wonder how wise we are to give our young acne patients prolonged ultraviolet light therapy.

The Sebaceous Glands

Modern histochemical techniques have thrown considerable light on the sebaceous glands and their products. The glands are holocrine and usually multiple acinar glands. Lipid accumulation and fragmentation characterize the sebaceous cells. Little is yet known of the mitochondria, but in the beginning of sebaceous differentiation lipid droplets appear first within the mitochondrial filaments. Mitochondria are the most sensitive indices of intracellular change and damage and are the seat of all important biological syntheses. In epidermal neoplasms they become strikingly pleomorphic.[14]

Sebum differs from tissue fats in being composed partly or entirely of waxes; thus a number of unusual substances not found elsewhere in the body must be synthesized within the sebaceous glands. Sebum contains free fatty acids, saturated and unsaturated; combined or esterified fatty acids; and unsaponifiable material, viz. cholesterol, squalene, high-molecular-weight alcohol and higher hydrocarbons.[17] The origin of free fatty acids in surface lipids is puzzling but might be explained in terms of lipases, which are known to be present in sebaceous glands and epidermis. The surface lipids, unlike those of any other tissues, contain saturated and unsaturated fatty acids with *odd* numbers of carbon atoms.[14]

The origin and functions of squalene (acyclic triterpine) are unknown, though Gillman *et al.*[8] think that the triterpenoids of sebaceous material may play some part in carcinogenesis. Squalene promotes an increase in $\triangle$-cholesterol and is known to inhibit important intracellular enzymes. Carcinogens may perhaps promote neoplasia by diminishing the inhibitory action of normal skin lipids on the growth and mitosis of epithelial cells.

Skin Carcinogenesis

The skin is made up of tissue structures very rich in protein such as collagen, elastin, keratin, albumin, globulin, mucin and melanin. Many amino-acids are also present in the skin and ribonucleoproteins have been demonstrated in the sebaceous glands. Modern work on the nucleoproteins may throw more light on cancer than was formerly available. Boyd[3] points out that the living cell is a mass of seething activity regulated by a system of enzymes and that, under the influence of external factors or hormones, a change may take place in one of the regulating enzymes leading to uncontrolled growth and cell division without reference to the requirements of the organism. The master control lies with nucleic acid, which is conjugated with proteins to form nucleoproteins, thought to be identical with the genes in the cell nuclei. The nucleoproteins possess the unique property of self-duplication within the body. There are grounds for the belief that there is a difference between the normal cell and the cancer cell in the anabolic process of the nucleic acid of the chromosomes. Radiation can produce permanent change in a gene by damaging the chromosome. Gene mutation may give the cell the power of greater reproduction and make it insensitive to normal inhibitory influences.

We know that the regulatory mechanism of the cell can be tampered with and it does not take much to alter the composition of the nucleic-acid regulatory mechanism, thus producing a self-perpetuating and therefore permanent derangement. A very slight change in the chemical structure of an organic substance may convert it from a non-carcinogenic to a carcinogenic agent; for example, the manufacture of methyl cholanthrene from bile salts.[3] It would seem to be possible, therefore, that prolonged actinic irradiation of the pilo-sebaceous apparatus might so alter the nucleoproteins as to lead to the production of carcinogenic substances.

I shall but briefly mention the *carbohydrate metabolism* of the skin, because I think that the answer to the problem of the pathogenesis of cutaneous cancer is far more likely to lie in either the lipid or the protein constituents. Normal sebaceous glands abound in glycogen, which decreases at the same rate as lipid increases. It would therefore appear probable that sebaceous transformation takes place by conversion of carbohydrate to lipid. Diabetics have a higher incidence of tumours in general than non-diabetics. Gillman *et al.*[9] inform us that hypoglycaemia is repeatedly found in cancerous patients. Diabetogenic doses of alloxan fail to provoke diabetes in cancerous individuals and cancerous diabetics need less insulin to reduce the blood-sugar levels. These findings point to the fact that malignant tumours take unto themselves as much carbohydrate as they can get and burn it up voraciously. The higher incidence and growth rate of neoplasms in diabetics is therefore probably due to an increased availability of carbohydrate. One would expect the high sugar content of the skin (Urbach's 'skin diabetes'[24]) to have an effect on the incidence and rate of growth of cutaneous cancers but, while I have no figures available, I am able to state that there have been extremely few diabetics at our Clinic.

THEORIES ON THE AETIOLOGY OF BASAL-CELL CARCINOMA

According to Lever,[12] primary epithelial germ structures differentiate into sebaceous glands, apocrine glands and hair. Tumours arising from the primary epithelial germs show degrees of differentiation into these three. Basal-cell epitheliomas arise only where the primary epithelial germ structures are found. Smith and Swerdlow[22] are impressed by the tendency of the cells in basal-cell epitheliomas to reproduce the pilar apparatus and they think it reasonable to believe that there remain, in the basal layer of the epidermis cells which are anlagen of the pilo-sebaceous structures. They think that basal-cell epitheliomas all arise from hair follicles or hair anlagen.

The cells of the epidermis may undergo sebaceous transformation or metaplasia when irritated.

Gillman *et al.*[7] have found that an excess of pseudo-elastic tissue or basophilic collagen in the dermis plays some part in the pathogenesis of skin cancer in sites of chronic irradiation injuries or in areas repeatedly treated with carcinogens.

They state that skin cancers do not arise from surface epithelium but are 'adnexal tumours'. Regenerating epithelium consistently sends spurs down into the dermis and may form new hair follicles and sebaceous glands, but if the dermis is grossly altered these epithelial spurs may fail to form new appendages and become, instead, papillomatous or even carcinomatous. They postulate that epidermal neoplasia is the consequence of failure of a damaged dermis to differentiate hair-papilla cells in response to pluripotential invasive epithelial spurs derived from a proliferating epidermis. This concept may clarify the obscure relationship of skin cancer to scars, hair regeneration and chronic irradiation injuries of the dermis.

Frumess and Lewis[5] have described a light-sensitive seborrhoeic type of dermatitis of the face, repeatedly provoked by exposure to sunlight.

It is within the bounds of possibility that the sebaceous glands may manufacture or store substances, as yet unidentified, which may be photosensitizers or even carcinogens. In 1933 Roffo[16] suggested that the large amount of cholesterol in the exposed skin prepared the soil for subsequent malignant growth by acting as an accumulator of light. Bergmann *et al.*[1] tried to refute this theory by showing that when they applied irradiated cholesterol to the skin of mice for more than 2 years they failed to produce cancer. Mohs[13] painted the skin of mice with material washed with benzene from human skin affected with multiple precancerous keratoses and failed to produce cancer in the animals. Snapp *et al.*[23] had similar experiences after painting the ears of mice with irradiation products of skin surface fats. I submit that the possible carcinogenic substances in sebum may prove to be species-specific accounting for the failure of these experiments. Greenstein[10] leaves the door open by summing up the present position in the following words: 'It does not appear probable that as a result of the irradiation a carcinogenic agent is formed in the skin which resembles any carcinogen known at the present time.'

The question of smegma might be mentioned here. It is chemically closely related to sebum and is thought to cause cancer of the penis in uncircumcized males and of the cervix in their wives. Solar radiation plays no part here, but the combination of accumulated smegma and repeated mild trauma seems to be a factor in the production of carcinoma.

The mechanism of the production of photosensitivity is not yet known but is thought to depend on the absorption of quanta of energy by molecules of photosensitizing chemicals present in the prickle-cell layer of the epidermis, resulting in chemical changes in this layer.

The work of Coblentz[4] has shown that the parts of the ultraviolet spectrum responsible for ordinary tanning lie between 3,130 and 3,900 Å and that cancer of the skin is produced by wave-lengths between 2,000 and 4,000 Å. Blum[2] found that ultraviolet irradiation caused acceleration of the rate of proliferation of tumour cells, each dose of radiation causing an increase in the relative rate of proliferation proportional to the magnitude of the dose, up to a certain limit set by physiological factors limiting the absolute growth rate. The tumour cells may not differentiate sharply from normal cells but represent those cells and their offspring whose growth rate is most effectively accelerated by the ultraviolet irradiation and which therefore outstrip their fellows and form a tumour. This theory partly accounts for the sudden appearance of tumours after a period, often extremely prolonged, of apparent latency. We, at the Clinic, formed the opinion that by the time basal-cell carcinoma had developed in 'sailor's skin' it was too late to hope for much future benefit from strict protection against actinic radiation.

Endocrine and Nutritional Aspects

Androgens stimulate sebaceous activity and mitotic division. They also control the rate of secretion of sebum. There is a pronounced increase in size and activity of the sebaceous glands at puberty and the pituitary is responsible for their proper maintenance. The preponderance of basal-cell carcinoma in European males over European females and all non-European persons may have something to do with a higher secretion of androgens.

By far the most usual type of patient seen at the Clinic is the Afrikaner farmer who, besides exposing his face and hands to the light of the sun throughout his life, probably nowadays lives on a richer, fattier diet than any other class of person in the country. Roffo[18] noted that precancerous skin lesions have a high cholesterol content and are accompanied by hypercholesterolaemia. He also stated that a diet rich in lipoids encouraged the growth of tumours. The question of any possible relationship between increased sebaceous activity and high serum lipids warrants further investigation.

It has always been assumed that the greater cutaneous pigmentation of the Coloured races is enough to explain their relative immunity from solar cancer. I submit that there may be other unexplained accessory factors. It is categorically stated in most text-books that Negroes have more and larger sebaceous glands and more sebum than White people. I assume that this statement applies to the American Negroes, whose culture and dietary habits do not vary greatly from those of their White compatriots. A very different state of affairs exists in South Africa, where the Bantu and Coloured races are on the whole of a very much lower economic and social status than the average European.

In the malnourished non-European, androgen secretion is greatly diminished, sometimes to the extent of producing gynaecomastia and diminution of libido. The Gillmans[6] have most beautifully described certain alterations in the structure and metabolism of the sebaceous glands in the malnourished African. They state that the role of the sebaceous glands in skin metabolism has been incompletely investigated and little thought has been given them in general fat metabolism, though their total volume must be enormous. For normal skin function, a minimal daily amount of fatty acids is essential. There is an interesting but complex relationship between fats, carbohydrates, proteins and sterols in the maintenance of a healthy skin.

In pellagra the involvement of the sebaceous glands is associated with a diet deficient in fats and proteins. The fatty secretions of the sebaceous glands are altered and the lipoids are more easily converted into a black or brown compound accounting for the 'sooty' skin on the exposed parts. The follicular keratosis of malnutrition is probably due to much more than avitaminosis and may well be the result of a general disorder of metabolism arising from a deficiency of biologically useful fats, sterols and proteins.

In malnutrition the sebaceous glands are greatly hypertrophied and the ducts are dilated not because of obstruction to the outflow of secretion but owing to trophic changes in the duct epithelium. After treatment the sebaceous glands

regain their normal size but firm plugs of secretion remain projecting from their orifices. The lipoidal secretion seems to be normal in the alveoli but undergoes some change in the ducts. The abnormal formation of sebum and the acneiform lesions in malnutrition may be manifestations of imbalance of sex hormones.

It is perhaps significant that amongst our 29 non-European patients with basal-cell carcinoma there were more women than men.

It is possible that the abnormal sebum of the undernourished non-European lacks some substance which is present in normal sebum and which may become carcinogenic after prolonged irradiation with ultraviolet light. I venture to suggest that the general low level of nutrition amongst the Coloured races of South Africa plays some part not only in encouraging their pigmentation but in protecting them from over-production of *normal* sebum and therefore, in some way, from basal-cell carcinoma of the skin. The very nature and distribution of basal-cell carcinomas indicate some close relationship between their development and a combined carcinogenic action of ultraviolet light and sebum in otherwise normal individuals. The different dietary habits of the non-Europeans in South Africa may well lead to some alteration in the sebaceous glands and their secretions, producing a lack of the suspected carcinogenic constituents of sebum.

In favour of this theory is that fact that albino Africans, who are usually rejected, neglected and underfed, although very prone to squamous-cell carcinoma of the skin do not in my experience suffer from basal-cell carcinoma in spite of their total lack of protective pigment. Against the theory is the fact that there are many non-Europeans both in South Africa and in America who are well nourished according to European standards and yet do not suffer from basal-cell carcinoma of the skin. By the same token, however, the well-fed African rarely suffers from acne or seborrhoeic dermatitis. It is only the malnourished African who shows evidence of dyssebacia, that is, the secretion of abnormal sebum.

SUMMARY

The observations of a group of workers at a Clinic conducted at Cape Town for the diagnosis, prevention and treatment of cutaneous neoplasms are discussed, with special reference to basal-cell carcinoma, its nature and its occurrence in sites where the sebaceous glands are most profuse and mainly on the parts of the body exposed to light.

Arising out of these observations and the fact that basal-cell carcinoma is extremely rare in the non-European races in South Africa, the theory is advanced that, in view of the poor nutritional state of most non-Europeans, there may be other factors beyond mere pigmentation which prevent the development of basal-cell carcinoma in these individuals.

One of the commonest manifestations of malnutrition is an alteration in the sebaceous glands and sebum. It is possible that the abnormal sebum of the undernourished non-European lacks some substance which is present in normal sebum and which becomes carcinogenic when it is subjected to prolonged irradiation by ultraviolet light.

I would like to express my sincere thanks to Mr. T. Schrire for inviting me in 1950 to be a member of the panel of doctors working at the Combined Clinic at the Groote Schuur Hospital and for his constructive advice during the preparation of this paper.

REFERENCES

1. Bergmann, W., Staveley, H. E., Strong, L. C. and Smith, G. M. (1940): Amer. J. Cancer, **38**, 81.
2. Blum, H. F. (1950): J. Nat. Cancer Inst., **11**, 463.
3. Boyd, W. (1953): *Text-book of Pathology*. London: Henry Kimpton.
4. Coblentz, W. W. (1948): J. Amer. Med. Assoc., **136**, 1040.
5. Frumess, G. M. and Lewis, H. M. (1957): Arch. Derm., **75**, 245.
6. Gillman, J. and Gillman, T. (1951): *Perspectives in Human Malnutrition*. New York: Grune and Stratton.
7. Gillman, T., Penn, J., Bronk, D. and Roux, M. (1955): Brit. J. Cancer, **19**, 272.
8. Gillman, T., Hathorn, M. and Penn, J. (1956): *Ibid.*, **10**, 384.
9. Gillman, T., Hathorn, M. and Lamont, N. McE. (1957): Brit. Med. J., **2**, 43.
10. Greenstein, J. P. (1954): *Biochemistry of Cancer*. New York: Academic Press Inc.
11. Hämäläinen, M. J. (1955): *Cancer of the Lip with Special Reference to the Predisposing Influence of Sunlight and Other Climatic Factors*. Helsinki: Mercatorin Kirjapaino.
12. Lever, W. F. (1948): Arch. Derm. Syph., **57**, 709.
13. Mohs, F. E. (1948): Cancer Res., **8**, 371.
14. Montagna, W. (1956): *The Structure and Functions of Skin*. New York: Academic Press Inc.
15. Pascher, F. and Sims, C. F. (1954): Arch. Derm. Syph., **69**, 475.
16. Paul, N. (1933): *Cutaneous Neoplasms*. London: H. K. Lewis.
17. Pillsbury, D. M., Shelley, W. B. and Kligman, A. M. (1956): *Dermatology*. Philadelphia and London: W. B. Saunders Co.
18. Roffo, A. H. (1933): Amer. J. Cancer, **17**, 42.
19. Schrire, T. (1958): S. Afr. Med. J., **32**, 520.
20. *Idem* (1958): *Ibid.*, **32**, 776.
21. *Idem* (1958): *Ibid.*, **32**, 997.
22. Smith, O. D. and Swerdlow, M. A. (1956): Arch. Derm., **74**, 286.
23. Snapp, R. H., Niederman, D. J. and Rothman, S. (1950): Cancer Res., **10**, 73.
24. Urbach, E. (1946): *Skin Diseases, Nutrition and Metabolism*. New York: Grune and Stratton.

HOSPITAL AND WARD DESIGN WITH PARTICULAR REFERENCE TO OBSTETRICAL WARDS*

A. JENNINGS, B.ARCH., A.R.I.B.A., M.I.A., *Senior Research Officer, National Building Research Institute, Pretoria*

Architecturally speaking, the design of a hospital is a most involved problem, since it comprises self-contained but interrelated departments, the whole creating a complex group of varied functions. There is a great danger that each person who contributes to the final design will consider only his relative part without defining its relationship to the whole. Too much knowledge in a particular field may in fact be a handicap, for under its pressure the mind finds it only too easy to confine its vision to the things it has previously been conditioned to look for. This tends to the statement of requirements in terms of loose isolated items, particularly those parts previously experienced as unsatisfactory.

Unless the architect's approach is understood and he is equipped to ask the right questions, users will attempt to explain their needs in terms of their own ideas of plan arrangement, instead of tabulating their functional requirements. Doctors and nurses tend to be influenced in their opinions by conditions in the hospitals in which they trained, or by the conditions in the building where they consider the best medicine to be practised. No one doubts the value of a good building in assisting the staff in their work, but the extent to which the quality of the medical treatment is due to the men and women practising there, and the extent to which it is due to the building, must be examined. The architect may lose himself in acquiring a competent knowledge of detail unless he is aware of a basic rational approach to the problem. A sound basic design can always be modified in detail, but perfect details do not lend themselves to alteration in principle. The ideal relationship between architect and client would be similar to that between doctor and patient; an explanation of the symptoms, followed by examination, leads to diagnosis, and treatment is prescribed accordingly.

Differences in medical opinion and practice, and the continual development of medicine and treatment techniques, will demand a change of plan for efficient operation. The hospital designed for today will not necessarily function correctly tomorrow. To allow

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for this necessary change, the basis for the design must be a denominator common to all phases of development.

PLAN FORMS

The plan should encourage the highest amount of work output and should permit progressive changes in organization to maintain optimum efficiency. Too much emphasis should not be placed on the separate departments, but they must be well integrated in the whole and flexible within themselves. Future needs should be anticipated in such a way that a wrong initial assumption will not affect the plan adversely to any great extent. Planning should not be bound to a specific function; a solution is required which will allow flexibility.

An analysis of the plan forms which resulted from the techniques practised at different times will show the changes that have taken place and indicate the pattern of future tendencies. The hospital as we know it began in 1846 with the development of anaesthetics by Morton. During the Crimean war, Florence Nightingale laid the foundations of nursing reform and hospital construction and management. The work of Pasteur and Lister from 1860 to 1875 established the principles of our antiseptic system.[1] The concepts of discipline, hygiene and ventilation were easy to understand and express clearly architecturally. Each ward worked for itself and performed no external functions. This independence, coupled with the danger of cross-infection, resulted in the pavilion plan. The further development of medicine and nursing practice changed the basic needs of the hospital; the centralization now possible required the pavilions to be linked by corridors, which gradually became shorter. The lift and the necessity for concentration resulted in the block system of planning, which is a completely inflexible arrangement. This multi-storey solution allows for no easy extension and no change internally. All departments are equally related and a number of compromises are forced upon the architect.

In principle, all new developments in medicine, its techniques and their application, tend to reduce the length of stay in hospital, and this results in an increased load on diagnostic and treatment departments. There is a tendency to split functions progressively and form new units within the sections, aiming at a greater usage from a medical or economic point of view. Clearly therefore, the plan form must allow for flexibility of function, and flexibility for expansion and for contraction. When these facilities are arranged in a multi-storey wing, even if it is devoted entirely to the various treatment departments, the plan supposes a simultaneous parallel growth in each department which would not occur in practice. For example, if the X-ray department happens to be on the third floor, its extension affects the floors above and below it, which may require no change.

Some combination of block and pavilion system is indicated in which the departments are directly related to their frequency of usage, to enable a closer concentration of the more interdependent sections.

The diagnostic and treatment departments will grow or alter in the future, and new treatments may require special accommodation. Unless these departments are arranged on the ground floor the future development of the hospital will be inhibited. This does not mean the bottom floor of a multi-storey block, but a free-standing distributed arrangement on either side of a main circulation 'street' in accordance with the degree of interdependence.

Studies of inter-departmental frequencies at 4 Transvaal hospitals indicate that the relationships between the various sections are better satisfied by this arrangement than by the multi-storey plan. However, wards should not also be placed on the ground floor; such a plan would bring about too great a dispersal from the diagnostic and therapeutic centre. The ward is a fairly static element and can conveniently be stacked vertically; the vertical core of circulation is then linked to the horizontal 'street' at the appropriate point.

Despite the changes in treatment and rehabilitation, the acute patient will still require bed accommodation. Provision must be made in the ward for the patient's physical needs and for simple treatment; it will be necessary to provide sterile supplies and remove dirty materials. A reduction in the length of stay will not affect the ward plan as it does other departments. The only possible future need will be for more private accommodation, resulting from the improving socio-economic status of the population.

The nature of the nurses' tasks in the ward are not of prime importance to the planner, but rather the journeys necessary to perform those tasks. Clearly these should be as short as possible, especially those which occur frequently. The number of beds in the ward should ensure that the service rooms are used with intensity without congestion or waiting. The arrangement of beds around this service core will determine the form of the ward.

In the traditional or 'Nightingale' ward usually about 100 ft. long, 25 ft. wide and 12 ft. high, the beds are arranged at right-angles to the window walls, leaving a circulation way down the middle. The advantages are ease of supervision and direct bed-to-bed journeys for routine work. However, the bilateral lighting causes discomfort to the patient,[2] and the room size, as well as accentuating the normal working noise,[3] makes it difficult to achieve good ventilation and heating.[4] These disadvantages are obviated by the 'Rigs' arrangement of beds in groups parallel to the window wall, each group being screened from the next by some form of partitioning. In this ward the patient is not forced to look at the window opposite (the point of maximum glare), the smaller room size does not intensify the normal working noise, and the ceiling can be lower. However, with unilateral lighting the room depth is limited by the extent of penetration of natural light to give a reasonable intensity. It is predicted from day-lighting studies at the National Building Research Institute that, with an open site, reasonable natural lighting from one side can be obtained with the beds placed four-deep parallel to the window wall.

NATIONAL BUILDING RESEARCH INSTITUTE STUDY

To determine the most efficient arrangement within the ward, journeys by nurses during approximately 1,800 nursing hours were recorded. Analysis of the results showed that the nursing journeys conformed to the same general pattern; approximately 50% of all journeys were made within the bed area, 30% from bed to service rooms, and 20% from service room to service room. All the wards measured were variations of the traditional plan, and the high percentage of bed-to-bed visits probably results from the present system of organizing the work as a series of rounds from bed to bed—which is a direct result of the inconvenient plan. Accepting the fact that journeys from service room direct to a bed are the most important and urgent journeys, Fig. 1A shows a 32-bed ward arranged on the 'Rigs' pattern, and Fig. 1B a 32-bed 'Nightingale' ward with the same area per bed.

In the study of nursing journeys, the length of the journeys from bed to bed were found to average approximately 15 ft. 6 in. If the distance between service rooms is taken as 20 ft., then the 'Nightingale' arrangement in Fig. 1B represents an increase of 31% in the total distance walked compared with the 'Rigs' plan in Fig. 1A. In the 'traditional' wards measured the average distance walked by a nurse during a tour of duty was approximately

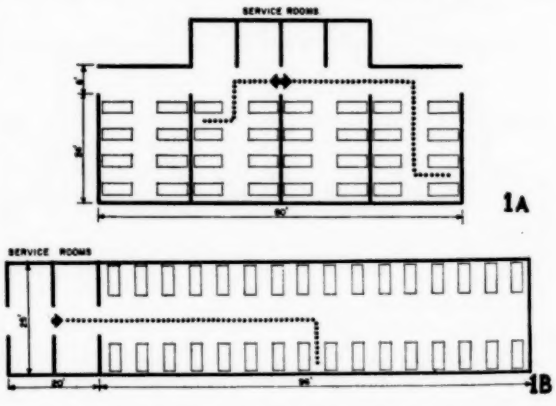

Fig. 1A. 'Rigs' ward. Average journey 42 ft. 6 in.
Fig. 1B. 'Nightingale' ward. Average journey 68 ft.

4½ miles, and 3½ miles in the corresponding figure for the 'Rigs' ward. If, however, in Fig. 1A the service room core is displaced by 20 ft. from the centre of the bed area, the total distance walked will increase by 12% and generally, therefore, the beds should be arranged symmetrically and as compactly as possible around the service core.

Studies in Sweden show that the smaller the number of beds in a room the greater are the number of visits per bed per day.[5] A patient in a single room received 60 visits per day; each patient in a 2-bed room received 40 visits per day; in a 6-bed room 20 visits per day, and in an 8-bed room only 16 visits per day. The disproportionately large number of visits to patients in single rooms is partly attributed to the seriousness of their condition and the desire for attention, due to loneliness. In the larger rooms, the nurse, while attending to one patient, can ascertain whether others require it, and in addition some help is given by ambulant patients. Because of the need for extra care of patients in single rooms, they should be placed directly opposite to the service rooms. If economy is important single rooms should only be provided for those patients whose condition requires it.

If patients are grouped in the ward according to their degree of illness, the work of the staff can be further simplified by ensuring that the most frequent and urgent journeys are the shortest. The acutely ill may be provided with single rooms opposite the service-room core, the bed-fast patients in larger rooms on either side of these, and the semi-ambulant and ambulant patients could be placed nearer to the entrance of the ward and the ablution rooms.

The measurements of nursing journeys previously discussed were extended to cover the relative importance and interdependence of the service rooms. It was found that the minor rooms such as store, cleaners' rooms, etc. received only approximately 3% of the visits, and so the study was restricted to the duty room, sterilizing room, sluice room and kitchen. In all except maternity wards, the duty room is the most important service room, accounting for approximately 10% of all journeys. Both the sluice and sterilizing room receive approximately 7% of all journeys each, although their relative importance varies slightly between medical and surgical wards. The importance of the kitchen varies with the method of serving food. If the food is served out in the kitchen, its importance is almost equal to that of the duty room. However, two-thirds of the kitchen visits are connected with serving meals, and if the food is served out in the ward the number of visits to the kitchen does not justify its inclusion in the service core within the ward, and this noisy element can be isolated.

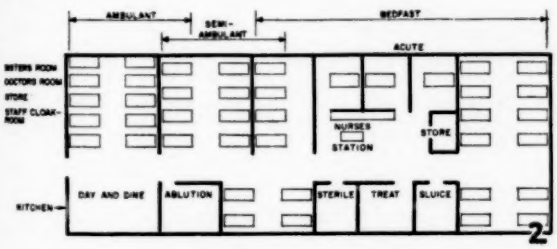

Fig. 2. 41-bed gynaecological ward for a Bantu hospital.

Clearly, only those rooms directly associated with nursing should constitute the service core; the kitchen, sisters' room, doctors' room and all minor service rooms can be placed outside the ward proper and adjacent to the vertical circulation. Some of these rooms could even be shared by another ward on the same floor. Fig. 2 shows a diagrammatic arrangement on this basis.

MATERNITY WARDS

In maternity wards it was found that there was a clear division between the work of labour nurse, ward nurse and nursery nurse. This division of work should be reflected in the planning by three distinct units—admission, delivery, and ward—with the admission unit on one side of the delivery suite and the ward on the other. In this way the nursery facilities would be used to their maximum and the ward and nursery nurses would not be hindered in their

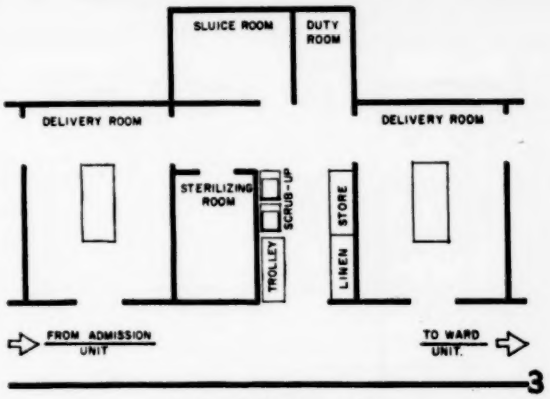

Fig. 3. Delivery room suite.

normal work in the larger wards by patients in the first stage of labour. Fig. 3 shows the ideal arrangement of a pair of delivery rooms based on the recorded measurements.

The journeys by ward and nursery nurses were measured together because of the strong traffic link between ward and nursery, and because this work would also take place in the ward where rooming-in was practised. The high frequency of visits indicates that multiple nurseries could be provided with advantage. The second most frequent journey is to the sluice room, both from the nursery and the ward, which indicates that sluice rooms might with advantage be duplicated. A division of the ward into ambulant and bed-fast groups is not justified, because the work is largely connected with the babies and between babies and mothers. The ward plan should therefore be symmetrical about the service core. The large proportion of ambulant mothers justifies the provision of both day and dining spaces. However, the special requirements of this section as a whole make it impractical to include it in the vertical ward block and it should be arranged on the ground floor off the main circulation street. Fig. 4 shows the proposed maternity unit for a 400-bed Bantu hospital.

CONCLUSION

The proper collation of data for design can only be achieved by close cooperation between architects and doctors and nurses. All the information that has been assembled is from observations of conditions in the 'traditional' ward. The planning conclusions on this basis have been aimed at a reduction of journeys, but it is probable that many aspects of organizing the work are a result of inconvenient plan forms, and the proper working of a new ward plan will require some reorganization of the systems if these new forms are to be properly tested. Re-measurement and comparison will be necessary to assess the effect of the new systems, to enable adjustments to be made free from the prejudice of traditional methods of organization. For a planner to suggest new systems of work to a nursing hierarchy would be heresy; the change must come from cooperation with and possibly by pressure from the medical profession. The work has been based solely on the reduction of journeys to perform nursing tasks. This seems to be the only way to obviate the effects of opinion and changing techniques, but it is necessary to assess this principle very carefully from the medical angle. Care, however, must be taken not to apply examples of details to test a broad principle, because in the development stage a plan can easily be overthrown in detail. Eventually, by cooperation, the complete thesis can be developed to answer all details.

SUMMARY

It appears that the diagnostic, therapeutic and supply departments of a hospital should be planned on the ground floor in such a way as to allow the expansion and alteration that will be necessary to accommodate future changes in techniques and the resulting increased turnover per bed. The wards, however, are a fairly static element and can be stacked vertically, with the ex-

Fig. 4. Maternity unit for a 400-bed Bantu hospital.

ception of maternity and paediatrics, both of which have somewhat different special planning requirements.

The wards themselves must have the beds arranged around the service core in the most compact way; this entails the 'Rigs' pattern with 8 bed units. The efforts in nursing will be further reduced by a division of patients according to their degree of illness, with the acute patients placed adjacent to the service rooms. In maternity wards the plan should reflect a clear division of admission, delivery and ward. Multiple nurseries and duplicate sluice rooms are necessary because of their great usage frequency.

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REFERENCES

1. The Nuffield Foundation (1955): *Studies in the Function and Design of Hospitals*. London: Oxford University Press.
2. Illuminating Engineering Society (1949): I.E.S. Code for Lighting of Building Interiors. I.E.S., London.
3. Ingerslev, F. (1952): *Acoustics in Modern Building Practice*. London: The Architectural Press.
4. Richards, S. J. (1957): *Minimum Ceiling Heights in South Africa*. National Building Research Institute, Pretoria. Bulletin No. 15.
5. Statens offentliga Utredingar (1955): *Rationalisering av Sjukhusdriften*. Stockholm.

TAALRUBRIEK

Die Taalkomitee van die Fakulteit van Geneeskunde van die Universiteit van Stellenbosch vergader op gesette tye om probleme in verband met Afrikaanse geneeskundige taal te behandel. Die komitee het reeds die medewerking van die Taalkomitee van die Suid-Afrikaanse Akademie vir Wetenskap en Kuns en verwag om ook die medewerking te erlang van die Akademie self.

Die Komitee stel voor om te hou aan die Akademiespelling en -skryfwyse, waarvan sekere beginsels eersdaags hier gepubliseer sal word. Die Komitee meen dat daar vryheid moet bestaan om òf die ‚vreemde' woord of woord-groep te gebruik, d.w.s. die Latyn of Grieks of Frans in die oorspronklike vorm, òf die verafrikaanste vorm (waar dit moontlik is), òf Afrikaanse ekwivalente, maar die Komitee is gekant teen wat plat is, teen wat sosiaal laer gewaardeer word, al sou dit ook hoé Afrikaans wees.

Die volgende word dan voorgestel vir die Latyn of die Engels wat daarteenoor aangegee word:

1. curette	.. ..	kuret (instrument), kuretteer (ww.)
curettage	.. ..	kurettasie
curettings	.. ..	kuretsel
2. cephalopelvic disproportion	..	sefalopelviese disproporsie
3. menstrual	.. ..	menstrueel (attributief: menstruele)

Ons vind hier *menstruaal* èn *menstrueel*, maar verkies *menstrueel* om die volgende redes: (1) Van Nederlands tot Afrikaans is verskeie *-aal*-vorme deur *eel*-vorminge verdring (bv. departementaal deur departementeel). (2) Daar bestaan 'n sterk neiging tot die gebruik van die *-eel*-vorme, waarvan ons heelwat meer as

'n honderd in Afrikaans het. (3) Talle daarvan is ou gevestigde vorme, ook reeds in Nederlands. (4) *Menstrueel* sluit onmiddellik as menstru*aal* aan by *menstrueer*.

4.	sacrococcygeal	sakrokoksigeaal. (Maar *coccyx* bly so.)
5.	cochleate uterus	kogleêre uterus
6.	cyst	sis, sistoseel, sistiese

Die Komitee is nie ten gunste van *kiste* vir E. *cyst* nie: *sis* is reeds in 'n mate deel van die algemene taal, maar *kiste* het in die algemene taal reeds 'n gevestigde ander betekenis as meervoud van *kis*.

7.	haemoptysis	hemoptise
8.	hyperthyroidism	hipertiroïdisme
9.	stupor	stupor, stupor verwek, stuporverwekkend
	stupefacient	stuporverwekker
10.	chelating agents	chelatore
11.	bex	hoes

Die benoeming van verskillende soorte hoesmiddels word nog oorweeg.

12.	pulsate	pulseer (in aansluiting by bv. pulsometer)
13.	Röntgen, X-straal of radio?	

Die Komitee het verbindinge en afleidinge van *X-straal* en *radio* oorweeg soos X-straalfoto, X-straalapparaat, radioloog, radiograaf, -is, ens. Die Komitee het hierteen geen besware nie, maar meen dat verbindinge met *röntgen* eenvoudiger is en meer van 'n eenheidsisteem vorm. Daarom word voorgestel:

röntgenfoto, röntgenoloog, röntgenologie, röntgenapparaat, röntgenografis

Waar röntgenfoto en -ologie reeds jare met klein letter in die Woordelys van die Akademie staan, word dit eerbiedig en die ander dienooreenkomstig geskrywe met *r* en nie *R* nie.

'n Röntgenografis word ook röntgenograaf genoem, maar die Komitee verkies die vorm op *-is* omdat (1) sommige woorde op *-graaf* die persoon benoem en ander die instrument of funksie, terwyl (2) *-is* tot deurgaans die persoon benoem, soos in spesial*is*, latin*is*, ens.

THE BENEVOLENT FUND : DIE LIEFDADIGHEIDSFONDS

The following donations during March 1959 are gratefully acknowledged:

Met dank word die volgende skenkings gedurende Maart 1959 erken:

Votive Cards in Memory of:

Mrs. K. Rogers-Jenkins *by* Dr. M. J. Cohen; Dr. J. C. Rabie *by* Dr. and Mrs. A. S. Weir; Dr. Guy Fehrsen *by* Dr. L. I. Brown; Evelyn Gallagher *by* Dr. and Mrs. A. B. Swarbreck; Mr. L. D. Normand *by* Dr. D. G. Cowie; Dr. H. G. Lee *by* Drs. S. Heymann and S. Javett; and Mr. M. Rezek *by* Dr. H. A. Kalley and Dr. R. B. Peckham.

Total Received from Votive Cards: £12 12s. 0d.

Dienste Gelewer aan: Services Rendered to:

Dr. D. Hugo *by* Dr. A. L. Agranat.
Dr. A. P. Blignault *by* Dr. S. Berman.
Dr. B. R. Richard *by* Dr. Joan Griffiths.
Mev. C. A. Strydom *deur* drs. A. Groenewald, C. Albertyn en P. Dreyer.
Mev. van der Riet *deur* drs. P. Connan, J. P. Theron, C. van der Merwe, J. D. Meyer en A. Vorster.
Marilyn and Jo-Ann Lowenstein *by* Dr. E. Fasser.
Jo-Ann Lowenstein *by* Drs. T. Dunston and J. M. Martin.

Totaal Ontvang vir Dienste Gelewer:
Total Received for Services Rendered: £30 9s. 0d.

Donations:

Drs. H. A. Kalley, R. R. MacKenzie, D. F. Fismer, O. Wienzierl, J. K. McKechnie, H. S. Edwards, T. C. Baker, C. Gordon, N. E. Laufer, D. T. Trotman-Pitt, F. Rockey, E. Briggs, A. H. Stegen, M. B. Pemberton, M. Maister, L. Brown, A. L. Rencken, J. Q. Matthews, A. C. L. Grantham, E. C. Morley, and J. K. McCabe.

	£	s.	d.
Total	£12	2	6
Collection: Natal Coastal Branch Annual Meeting	7	6	0
Anonymous		5	0
Total Donations	£19	13	6

Grand Total £62 14s. 6d.

THE MEDICAL ASSOCIATION OF SOUTH AFRICA

BALANCE SHEET 31 DECEMBER 1958

1957 £		£ s. d.	£ s. d.
	Accumulated Funds		
31,043	Balance, 31 December 1957 ..	22,153 7 8	
8,890	Less: Excess of Expenditure over Income for the year	8,805 9 2	
22,153			13,347 18 6
	Dr. J. S. du Toit Memorial Fund—Capital Account		
—	Contributions Received		175 5 0
	Liabilities		
11,669	Sundry Creditors		15,822 18 8
—	Bank Overdraft		1,322 9 11
£33,822			£30,668 12 1

1957 £		£ s. d.	£ s. d.
	Fixed Assets		
7,279	Landed Property—'Byrness', Newlands Avenue, Newlands, Cape—at cost		7,278 18 9
4,225	Office Furniture, Fixtures and Machines		3,860 17 0
3,195	Net Book Value 1 January 1953 ..	3,079 11 0	
2,973	Purchased since that Date at Cost)	3,114 3 10	
6,168		6,193 14 10	
1,943	Depreciation since 1 January 1953	2,332 17 10	
	Investments		
12,920	*Sundry Investments—At Cost* ..		11,170 0 0
1,350	Quoted Union Government Stock (Market Value, 31 December 1958 £1,097—1957 £1,146) ..	1,350 0 0	
9,820	Unquoted Shares	9,820 0 0	
1,750	First Mortgage Bond	—	
	Current Assets		
7,654	Sundry Debtors less Provision for Doubtful Debts (£425—1957 £600)		8,139 18 9
1,744	Cash on Hand (and at Bank) ..		43 12 7
	Dr. J. S. du Toit Memorial Fund		
—	Cash on Savings Account		175 5 0
£33,822			£30,668 12 1

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 DECEMBER 1958

1957 £		£ s. d.	£ s. d.
3,914	*Deficits Transferred*		2,815 0 11
2,995	Journal Account	2,376 4 7	
657	Laboratory and Clinical Medicine Account	355 17 3	
262	Agency Account: Cape Town	82 19 1	
11,767	*Administration Expenses*		12,895 2 11
8,942	Salaries	9,482 17 1	
1,053	Rent	1,276 0 0	
367	Subscriptions	459 5 8	
254	Printing, Stationery and Office Requisites	447 16 4	
341	Pension Fund Contributions	354 15 7	
218	Sundry Office Expenses	302 11 8	
205	Postages and Telegrams	178 3 7	
148	Telephones	153 14 8	
134	Depreciation — Office Furniture, Fixtures and Machines	122 2 11	
50	Audit Fees	62 10 0	
43	Bank Charges	44 16 10	
12	Unemployment Insurance Fund Contributions	10 8 7	
5,720	*Sundry Expenses*		4,936 3 9
	Travelling Expenses	4,209 16 11	
3,432	Delegates 3,205 14 10		
964	Secretary, Associate Secretary and Staff 1,004 2 1		
	Expenses—'History of Medicine in		
—	South Africa'	315 0 0	
	Entertainment Allowances	175 0 0	
—	Chairman of Council 100 0 0		
75	Secretary, and Associate Secretary 75 0 0		
	Amendments to Articles of		
—	Association	170 6 0	
	Various Expenses re Federal		
545	Council	57 3 3	
12	Legal Expenses	6 0 10	
3	Insurance	2 16 9	
483	Cost of Booklets	—	
206	Medals	—	
	Expenses—Assistant Secretary's Office, Pretoria		3,986 13 9
2,562	Salaries	3,153 12 8	
536	Office Expenses	696 13 3	
226	Travelling and Entertainment	136 7 10	
240	*Staff Pensions*		240 0 0
800	*Grants to Universities for Library Services*		800 0 0
316	*Expenses—'Byrness'*	691 15 2	
250	Less: *Rent Received*	250 0 0	
			441 15 2
—	*Bad Debts Written Off*		169 3 0
—	*Loss on Sale of Office Equipment*		9 12 2
£25,831			£26,293 11 8

1957 £		£ s. d.	£ s. d.
115	*Surplus Transferred* Agency Account: Johannesburg.		207 18 9
11,291	*Members' Subscriptions*		11,442 11 9
4,371	*Insurance Commission*		4,030 7 4
—	*Members' Donations in Response to Treasurer's Appeal*		1,163 14 0
672	*Interest on Investments*		400 7 0
439	*Sales of Booklets*		33 6 9
30	*Hire of Office Machines*		30 0 0
8	*Miscellaneous Revenue*		4 16 11
—	*Decrease in Provision for Doubtful Debts*		175 0 0
15	*Profit on Redemption of Union Government Stock*		—
8,890	*Excess of Expenditure over Income* transferred to *Accumulated Funds*		8,805 9 2
£25,831			£26,293 11 8

THE MEDICAL ASSOCIATION OF SOUTH AFRICA
BENEVOLENT FUND
BALANCE SHEET 31 DECEMBER, 1958

1957 £		£ s. d.
	Accumulated Funds	
44,352	*Balance, 31 December* 1958	47,546 12 8
£44,352		£47,546 12 8

1957 £		£ s. d.	£ s. d.
	Assets		
	Investments at Cost:		
5,575	*Union Government Stocks (Quoted)* (Market Value 31 December 1958 £5,017—1957 £5,053)		5,575 0 0
	£2,500 3½% 1962/65	2,450 0 0	
	£1,125 3½% 1957/64	1,125 0 0	
	£1,000 3½% 1959/69	1,000 0 0	
	£1,000 3½% 1960/70	1,000 0 0	
6,126	*Building Society Shares (Unquoted)* Saambou (Permanente) Bouvereniging—9,676 Fully Paid-up Indefinite Shares of £1 each.		9,676 0 0
29,239	*Secured Loan* Medical House (Proprietary) Limited—First Mortgage on Medical House, Wale Street, Cape Town.		29,239 0 0
			44,490 0 0
1,097	*Sundry Debtors*		1,132 17 9
	Interest Accrued	1,097 7 3	
	Sundries	35 10 6	
2,315	*Cash on Savings Account and at Bank*		1,923 14 11
£44,352			£47,546 12 8

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 DECEMBER 1958

1957		£ s. d.	1957		£ s. d.
£			£		
3,712	*Benevolent Payments*	3,746 9 4	2,436	*Interest on Investments*	2,446 9 1
14	*Stationery and General Expenses* ..	20 0 10		*Appropriation from Capital for Additional Benevolence*	
66	*Printing Copies of Constitution* ..	—	1,348		1,320 1 1
				Profit on Redemption of Union Government Stock	
			8		—
£3,792		£3,766 10 2	£3,792		£3,766 10 2

ACCUMULATED FUNDS

	Appropriation to Income and Expenditure Account for Additional Benevolence			43,713	*Balance, 31 December 1957*		44,352 5 8
1,348		1,320 1 1			*Contributions to Capital for the Year ended 31 December 1958*		
44,352	*Balance, 31 December 1958*	47,546 12 8		1,987			4,514 8 1
				1,201	Donations	3,361 15 9	
				560	Services Rendered	476 15 0	
				226	Votive Cards	675 17 4	
£45,700		£48,866 13 9	£45,700				£48,866 13 9

REPORT OF THE AUDITORS TO THE MEMBERS OF THE MEDICAL ASSOCIATION OF SOUTH AFRICA

We have examined the books and accounts and vouchers of the Association and have satisfied ourselves of the existence of the securities. We have obtained all the information and explanations which, to the best of our knowledge and belief, were necessary for the purpose of our audit. In our opinion, proper books of account have been kept by the Association, so far as appears from our examination of those books.

The above Balance Sheet and attached Income and Expenditure Account are in agreement with the books of account. In our opinion, and to the best of our information and according to the explanations given to us, the said Accounts give the information required by the Companies Act 1926, as amended, in the manner so required and the Balance Sheet gives a true and fair view of the state of the Association's affairs as at 31 December 1958, and the Income and Expenditure Account gives a true and fair view of the deficit for the year ended on that date.

Cape Town
24 March 1959.

Gurney, Notcutt & Fisher.
Chartered Accountants (S.A.)
Auditors.

BENEVOLENT FUND

We have examined the books and accounts and vouchers of the Benevolent Fund and satisfied ourselves of the existence of the securities. The above Balance Sheet and attached Statements of Income and Expenditure and Accumulated Funds are in agreement with the books of account. In our opinion the Balance Sheet gives a true and fair view of the state of the Fund's affairs as at 31 December 1958, and the Statements of Income and Expenditure and Accumulated Funds give a true and fair view of the Income and Expenditure of the Fund in respect of the year ended that date.

Cape Town
18 February 1959.

Gurney, Notcutt & Fisher.
Chartered Accountants (S.A.)
Auditors.

OFFICIAL ANNOUNCEMENT : AMPTELIKE AANKONDIGING

VACANCY — ASSISTANT EDITOR

Applications are invited from medical practitioners for the temporary post of Assistant Editor in the service of the Medical Association of South Africa.

The salary attaching to the post is £2,000 per annum (fixed) and the period of appointment is in the discretion of the Federal Council.

Applications must reach the Secretary, Medical Association of South Africa, P.O. Box 643, Cape Town, before 29 May 1959.

Medical House
Cape Town
24 April 1959

A. H. Tonkin
Secretary

VAKATURE — ASSISTENT-REDAKTEUR

Aansoeke word van geneeshere ingewag om die tydelike betrekking van Assistent-Redakteur in diens van die Mediese Vereniging van Suid-Afrika.

Die salaris aan die pos verbonde is £2,000 per jaar (vasgestel) en die duur van aanstelling berus by die Federale Raad.

Aansoeke moet die Sekretaris, Mediese Vereniging van Suid-Afrika, Posbus 643, Kaapstad, bereik vóór 29 Mei 1959.

Mediese Huis
Kaapstad
24 April 1959

A. H. Tonkin
Sekretaris

PASSING EVENTS : IN DIE VERBYGAAN

Medical Library, University of Cape Town. The attention of members is drawn to the fact that a public telephone has now been installed in the Library for the convenience of doctors wishing to telephone their rooms, etc.

* * *

Groote Schuur Hospital, Observatory, Cape. The clinical case conference scheduled to take place in the Falconer Lecture Theatre of this hospital at 4.30 p.m. on Thursday 14 May has been moved forward to Wednesday 13 May at 2 p.m. This is to enable members of the staff to meet Prof. R. B. Kerr, the Sims Travelling Professor for 1959.

The Radiological Society of South Africa. The results of the election of officers for this Society which was held recently are as follows: Chairman, Dr. H. Jackson; Hon. Secretary, Dr. C. Komins (1 Lister Buildings, Jeppe Street, Johannesburg); Members, Drs. I. Brotman, J. S. Coller, M. Fainsinger, J. Jacobson and N. Jacobson; *ex officio* members—Retiring Chairman, Dr. F. McLachlan; Hon. Life President, Dr. M. Weinbren.

* * *

Research Forum, University of Cape Town. A meeting of Research Forum will be held on Tuesday 19 May at 12 noon in the large A-floor Lecture Theatre, Groote Schuur Hospital, Observatory,

Cape. Dr. P. M. Smythe will speak on 'The possible disturbance of the immune mechanism and the intestinal mucous membrane in the genesis of the bacteraemia of kwashiorkor'. All interested are invited to attend this meeting.

* * *

The Radiological Society of South Africa, Transvaal Sub-group. At the annual general meeting of this Sub-group held on 31 March 1959 in Johannesburg, the following committee was elected as the office bearers for 1959: Chairman Dr. C. Komins; Vice-chairman Dr. J. Kaye; Hon. Treasurer Dr. J. Friedman; Hon. Secretary Dr. J. A. Louw (210 Harley Chambers, Jeppe Street, Johannesburg); Committee Drs. I. A. Brotman, I. Friedman, M. H. Fainsinger and J. N. Jacobson.

* * *

N.B. *Cape Western Branch (M.A.S.A.).* Will members of the Branch please note that the meeting to be held under the auspices of the College of Physicians, Surgeons and Gynaecologists of South Africa, when Professor Kerr, the Sims Travelling Professor for 1959, will address the meeting on 'Late complications of diabetes mellitus' has now been moved forward to Friday 15 May. This meeting will now take place in the Physiology Lecture Theatre, Medical School, Observatory, Cape, at 8.15 p.m. on Friday 15 May and *not* on 12 May as previously announced.

* * *

Dr. Paul D. White. The Harveian Lecture Theatre, University of the Witwatersrand, Johannesburg, was crowded beyond capacity on the evening of Tuesday 7 April when Dr. Paul White, the well-known American cardiologist, lectured on 'Coronary artery disease' to a combined audience of members of the Southern Transvaal Branch of the Association, the Medical Graduates' Association of the University of the Witwatersrand, and senior students. Dr. White's visit was sponsored by the Students' Visiting Lecturers Trust Fund. Dr. M. M. Suzman also spoke at the meeting on local research on the effect of anti-coagulants on the prognosis of heart disease.

* * *

South African Council for Scientific and Industrial Research—Bursaries. The CSIR is offering a limited number of bursaries for directed research at approved overseas institutions. The bursaries will be awarded in the field of pure and applied sciences (including medicine, dentistry, pharmacy and applied psychology) where adequate postgraduate training is not available in the Union. A high standard of candidates is required and, although the Council may make more than one award in one field of research, it does not bind itself to make awards. The bursaries will be tenable from 1 October 1959 for 1 year at a time and may be renewed if satisfactory reports are received on the bursar's progress. The maximum value of the bursaries will be: For work in the UK £500 a year, for the continent of Europe £600 a year, and for the USA £800 a year. Applications may also be made for a travel grant of not more than £220.

Applicants must submit programmes of research; must undertake to return to the Union for at least 2 years after termination of their bursaries, and must make their own arrangements for entry into overseas institutions approved by the CSIR. All bursaries will be subject to the Council's regulations governing research awards, and applications must be on the Council application form R.A. 1. Forms and copies of the regulations are obtainable from the registrars of South African universities or from the Secretary/Treasurer, CSIR, P.O. Box 395, Pretoria. Applications should, where possible, be submitted through the registrar of the university to which the applicant is attached, to reach the Council not later than 30 May 1959.

NEW PREPARATIONS AND APPLIANCES : NUWE PREPARATE EN TOESTELLE

THE 'STREAMLINE' DERMATOME

Medical Distributors, of 252 Jeppe Street, Johannesburg, have been appointed sole South African Distributors for 'Streamline' Dermatomes, made by the Concentric Company of Birmingham.

These power-driven machines have many advantages compared with the 'free-hand' method of skin graft cutting. A graft 3 inches wide, of a length depending only on that of the donor site, can be cut almost automatically; a house surgeon can learn to operate this equipment in a few minutes, leaving the surgeon free to give his full attention to the finer details essential for successful skin grafting. Grafts of uniform thickness are very quickly obtained, and no troublesome accessories, such as glue, cement or suction caps are required.

Speed in graft cutting has the following great advantages:

1. As large areas of skin can be taken in a few minutes from one donor site, a pressure dressing can be quickly applied with the result that the loss of blood is negligible. This is a considerable advantage in preventing shock in large grafting operations.

2. As a large graft can be cut without blood obscuring the immediately adjacent skin, this, too, is readily available as a donor site.

3. The use of machines leaves the skin with a clean smooth surface, which is an excellent condition for rapid healing, with the result that the same donor site can again be used within a few weeks.

The high rate of cutting (5,000-7,000 strokes per minute) ensures clean and smooth grafts with sharp, straight edges which are advantageous to the surgeon in fashioning them to the size of the receiving area and suturing the edges securely in place.

The thickness of each graft is controlled by the use of a micro control knob in the centre of the machine. Any thickness from the thinnest split skin graft to one of 0·050 inch, can be taken, each division on the control knob representing 0·002 inch. A visual check on the thickness of each graft can also be made by examining the space between the cutting edge of the blade and its overhead guard.

Further details can be obtained from Medical Distributors, P.O. Box 3378, Johannesburg.

DIE ‚STROOMBELYNDE' DERMATOOM

Medical Distributors van Jeppestraat 252, Johannesburg, is aangestel as die enigste Suid-Afrikaanse verspreiders van die ‚Stroombelynde' Dermatoom, wat vervaardig word deur die Concentric Maatskappy van Birmingham.

Hierdie kragaangedrewe masjiene het baie voordele in vergelyking met die ‚vryhand' metode om 'n velsnit te maak. 'n Huidreep 3 duim breed met 'n lengte wat afhang van die huidoppervlakte waar dit geneem word, kan feitlik outomaties gesny word. Die inwonende huisdokter kan binne 'n paar minute leer hoe om hierdie instrument te hanteer sodat die chirurg vry is om sy volle aandag te skenk aan die fyner puntjies wat so noodsaaklik is vir 'n geslaagde veloorplanting. Huidrepe van eenvormige dikte kan baie vinnig verkry word en geen lastige toebehore soos, gom, sement of suigapparate is nodig nie.

Spoed by die sny van huidrepe het die volgende groot voordele:

1. Terwyl groot gedeeltes van die huid binne 'n paar minute van die huidoppervlakte geneem kan word, word 'n drukverband net so spoedig aangebring met die gevolg dat weinig bloed verloor word. Dit is 'n groot voordeel by die voorkoming van skok wanneer uitgebreide veloorplantings onderneem word.

2. Aangesien 'n groot velreep gesny kan word sonder dat die onmiddellike aangrensende veloppervlakte deur bloed vertroebel

word, kan die gedeelte langsaan ook dadelik gebruik word vir 'n snit.

3. Met die gebruik van hierdie masjiene word die vel glad en skoon gelaat wat natuurlik die beste toestand vir spoedige genesing skep, sodat die huidoppervlakte vanwaar die vel geneem is, binne 'n paar weke weer gebruik kan word.

Die hoë snysnelheid (5,000-7,000 hale per minuut) verseker skoon en gladde repe met skerp, reguit kante wat gemaklik deur die chirurg vervorm kan word om te pas waar dit nodig is; ook kan die kante goed geheg word.

Die dikte van die reep word beheer deur die gebruik van 'n mikrokontroleknop in die middel van die masjien. Enige dikte, van die dunste kloofreep tot een van 0·05 duim dikte kan gemaak word. Elke afdeling van die kontroleknop verteenwoordig 0·002 duim. Daar kan gesien word hoe dik elke reep sal kom deur te kyk na die snykant van die lem en die skerm daaroor.

Verdere besonderhede kan verkry word van Medical Distributors, Posbus 3378, Johannesburg.

GRISOVIN TABLETS

Glaxo Laboratories (S.A.) (Pty.) Ltd. introduce Grisovin tablets, and supply the following information:

Grisovin, the Glaxo presentation of griseofulvin, is the first preparation to prove effective in the oral treatment of superficial fungal infections. This product has received a great deal of prominence in the overseas press, and stocks are now available in this country.

Experience so far confirms laboratory evidence that the activity of griseofulvin is confined to the dermatophytes. These, so-called 'ringworm fungi', are responsible for the superficial mycoses, tinea pedis, cruris, corporis and capitis, that are described by a variety of clinical names. In these conditions griseofulvin has given excellent results. *Trichophyton rubrum* infections, in particular, have previously been regarded as very difficult to treat with success, and it is notable that these have responded well and that results are as good in cases of many years' duration as in infections of recent origin.

Dosage. In general, the level of dosage that has been found effective is about 15-25 mg. griseofulvin per kg. body-weight daily by mouth. For practical purposes, the dosage given to adults is 1 g. (4 Grisovin tablets) daily by mouth. In more severe cases up to 2 g. daily may be given. For children, doses of 250-500 mg. (1-2 Grisovin tablets) daily are used, but as much as 1g. daily has been given without side-effects.

Packing. Grisovin tablets contain 250 mg. griseofulvin each, and are issued in bottles of 100 and 1,000 tablets.

ANCOVERT

British Drug Houses announce the introduction of Ancovert, a new preparation for the treatment of aural vertigo and Menière's disease, and supply the following information:

Composition. Each Ancovert tablet contains 50 mg. of nicotinic acid and 25 mg. of meclozine hydrochloride.

Mode of action. Ancovert has a threefold effect: (1) It exerts a sedative action which controls the immediate symptoms until the organism has been enabled to adjust the endolymphatic balance. (2) It has a depressant action of the vestibular centres and acts as an anti-emetic in those cases in which nausea, vomiting and prostration are present. (3) The nicotinic acid in Ancovert acts as a vasodilator enabling the patient to achieve endolymphatic balance more rapidly and to maintain this balance when it has been achieved.

Ancovert is generally free from side-effects although certain patients who are hypersensitive to nicotinic acid may experience transient flushing when taking Ancovert in high dosage.

Administration and dosage. One tablet twice daily.

Ancovert is supplied in bottles of 50 tablets.

RELEASIN

Warner Pharmaceuticals (Pty.) Ltd. announce the introduction of Releasin and supply the following information:

Releasin Warner-Chilcott is a standardized pure injection of Relaxin, the 'third hormone of pregnancy'. It has been widely used in obstetrics, and published reports have been reviewed recently.[1,2]

As with all other hormones when they first became available, a great deal of further clinical research will be required to assess its final place in therapy. In the meantime, its use is suggested particularly to control premature labour (between the 20th and 36th week) and in difficult or prolonged labour at term.

Fundamental research in laboratory and clinic has shown the significance of Releasin in connective tissue disease. This has already led to dramatic results in ameliorating scleroderma and suggested other uses in connective tissue disorders and peripheral vascular disease.

For the first time we have succeeded in making this product available to the profession in limited amounts at a reasonable cost—in spite of the limitation of supplies of raw material and the lengthy process of purification.

For further information contact Warner Pharmaceuticals (Pty.) Ltd., 6-10 Searle Street, Cape Town.

1. Sands, R. S. (1958): Canad. Med. Assoc. J., 78, 935.
2. Stone, M. L. *et al.* (1958): Amer. J. Obstet. Gynec., 76, 544.

PENVIKAL

Maybaker (S.A.) (Pty.) Ltd. announce the introduction of Penvikal brand of potassium penicillin V, and supply the following information:

This biosynthetic penicillin is stable in the acid gastric secretion, absorption is rapid, and effective blood levels are obtained 15 to 30 minutes after the tablets have been taken on an empty stomach. Penvikal is indicated in the treatment of infections due to penicillin-susceptible organisms including pneumococci, streptococci, staphylococci, and some bacilli. It may be given for continuous prophylaxis against streptococcal infection in cases of rheumatic heart disease and congenital heart defect. Penvikal is also indicated for short-term prophylactic administration in such patients before and for a few days after the extraction of teeth, tonsillectomy, and other operations within the oral cavity.

Penvikal is supplied as tablets of 125 and 250 mg. equivalents to 200,000 and 400,000 units of benzylpenicillin (penicillin G). The product is supplied in containers of 12, 100 and 500 tablets respectively.

BOOK REVIEWS : BOEKBESPREKINGS

DRUGS OF CHOICE

Drugs of Choice, 1958-59. By Walter Modell, M.D. (Editor). Pp. 931. South African price: £5 8s. 6d. St. Louis: The C. V. Mosby Company. 1958.

The terrific avalanche of drugs has kept many a doctor doubting which of a series of newcomers should be used in place of established agents or in preference to competitive contemporaries. Many books have been written in recent years, some of the nature of catalogues, others dealing with special advances in therapy, to assist the physician in a general or special way.

The present volume, which is of no mean size, is designed as a practical guide to the selection of the drug of choice for a particular condition. It has been written by experts in many fields of medicine, who indicate their choice of drugs; they express their own opinion based on their specialized knowledge and experience. In other words these are not review articles and there is no argument on any issues. The expert opinion is by American physicians for those who desire to follow, or can obtain the drugs to carry out their therapeutic programmes. Each chapter is followed by a lengthy Drug Index, a list of many proprietary preparations, which serves for reference but not as a help to the reader to make his choice.

Every doctor today is using drugs of great potency and perhaps also of great variety (depending on the nature of his practice), and needs to know about drugs that are being used by others. This book indicates in clear, concise, and practical terms what are regarded as the best available drugs for a particular therapeutic problem.

N.S.

RADIO-ANATOMY OF INFANTS

Röntgenanatomie der Neugeborenen- und Säuglingslunge. Von Priv.-Doz. Dr. med. habil. Z. Zsebök. 160 Seiten. 286 Teils farbige Abbildungen. DM 75.00. Stuttgart: Georg Thieme Verlag. 1958.

In the first few chapters the author deals with his radiological methods and with anthropological measurements of the thorax of the newborn. He outlines the radiological appearance of the normal thorax. The development of the lungs is shortly mentioned. Then the author describes in full details the normal radiological findings of bronchi, pulmonary vessels, lungs, hilar lymph nodes, thymus, diaphragm and pleura.

This book is very well produced and most of the illustrations are excellent. Zsebök's book fills a gap in the medical literature. Radiologists, paediatricians and pathologists can find here a good review of former observations and many new details of the thorax and lungs of the newborn.

H.W.W.

CORTICAL STIMULATION

The Excitable Cortex in Conscious Man. By Wilder Penfield, O.M., C.M.G., Litt.B., M.D., D.Sc., F.R.C.S., Hon. F.R.C.P., F.R.S. Pp. ix+43. 15 figures. 10s. 6d. net. Liverpool: Liverpool University Press. 1958.

This book, based on the fifth Sherrington lecture, contains valuable information on cortical stimulation.

The method of mapping out cortical or other brain centres while operating on a patient is an ideal one: the scientist or neurosurgeon can thus compare the results of cortical stimulation derived from animal experiments with the histological areas of brain matter. These two methods of localizing the different centres of the brain often give unexpected results when 'silent' areas suddenly become alive.

Penfield and his school developed the stimulation and localization of brain areas to a great art and the results are interesting to both the physiologist and the neuro-surgeon. The presence of a 'centrencephalic' system, that is, neurone circuits which unite the two hemispheres within the higher brain stem, leads to an interesting working hypothesis. This is encouraged by the knowledge that the associative connections confined to each hemisphere could not alone serve the requirements of sensory organization.

For those who remember Sir Charles Sherrington and his work it may be worth while to read the introduction. It is a short but fine description of his personality and of his way of thinking in the interesting twilight of science, religion and philosophy, in which the author of the present book has also some interest and to which he has given some thought.

The interested reader may be referred to a much more comprehensive book on this subject, *The Cerebral Cortex of Man*, by W. Penfield and T. Rasmussen (Macmillan & Co., New York: 1950).

M.W.

CORRESPONDENCE : BRIEWERUBRIEK

RECORDED LECTURES

To the Editor: I was interested to read in the issue of your *Journal* of 11 April,[1] a letter from Dr. F. A. van Heerden of Bergville about the availability of medical lectures recorded on tape.

You are probably aware this is one of the facilities offered by the College of General Practitioners in the United Kingdom. Smith Kline and French Laboratories have assisted with the preparation of tape recordings by prominent doctors in that country. These recordings are distributed by the College of General Practitioners. When the South African College of General Practitioners is established, it is hoped that these recordings will also be available through them in South Africa.

In the United States Smith Kline and French have recently been recording on tapes meetings of the American Psychiatric Association, which are available to interested groups of doctors. More recently a recording has been made of an interesting transatlantic broadcast between the annual Clinical Meeting of the British Medical Association in Southampton, and the meeting of the American Medical Association in Minneapolis, on 5 December 1958. The subject of the conference was chest diseases.

It would be interesting to know how great the interest is in South Africa in such recordings and others of a similar nature and whether they should be made available as a service to the medical profession.

E. J. M. Odell

SKF Laboratories (Pty.) Ltd.
P.O. Box 784
Port Elizabeth
16 April 1959

1. Correspondence (1959): S. Afr. Med. J., 33, 322.

RECORDED LECTURES

To the Editor: Since Dr. van Heerden[1] has stimulated interest in this subject by writing in the *Journal* of 11 April 1959, the following information may be of practical value:

Since I bought my first tape recorder in 1952 I have, among other uses, also recorded medical addresses and, on one occasion, a lecture on breast cancer by a visiting authority. Unlike reading, you can listen to tape recordings while partially occupied by something else. An American colleague and fellow tape-recording enthusiast listens to Audio-Digest tapes while he drives his car.

I have become aware of the shortcomings of the tapes which were 'home-made' and, therefore, far below the professional standard of Audio-Digest tapes produced by the Audio-Digest Foundation, a non-profit making subsidiary of the California Medical Association of 205 North Glendale Avenue, Glendale 6, California, USA. Their 5-inch reels of tape provide about 1 hour of the most interesting and enjoyable listening to a well-chosen selection of expertly summarized articles from the world medical literature. Not only are the articles read with the clarity and resonance of an expert reader, but also included are experts summing up important points in their own special fields.

The charge for the weekly general practice tape is $154 per annum—the reels of tape becoming the property of the recipient. By subscribing to every alternate reel only, i.e. 26 reels, the subscription falls to $84 per annum. Subscriptions may also be confined to any of the following specialities: surgery, general medicine, obstetrics and gynaecology, paediatrics, and anaesthesiology; by paying $77.50 per annum one then receives a tape twice a month (24 a year). A mailing charge of 38 cents per tape as first class mail or $2.25 per tape as air mail parcels is made. The Audio-Digest also publishes a catalogue of single tapes consisting of talks or panel discussions costing $4-$5 per tape, post free.

Audio-Digest tapes can be whole-heartedly recommended both to the doctor and to medical libraries where they can be used to supplement our constantly advancing medical education both at the undergraduate and postgraduate levels. I shall be glad to do what I can in helping to make tapes of medical interest more freely available. We are also hoping to have tapes available at the forthcoming 42nd Medical Congress (M.A.S.A.) at East London from 27 September to 3 October this year. Useful contacts, discussions and even new tape recordings could then be made.

R. M. Schweitzer

6 Bank Street
West Bank
East London
22 April 1959

1. Correspondence (1959): S. Afr. Med. J., 33, 322.

RECORDED LECTURES

To the Editor: It will be of interest to you and possibly also to your readers to learn that Squibb Laboratories (Pty.) Ltd. have just introduced what is, we believe, a unique service to the members of the medical profession in South Africa.

Tape recorded reviews of current medical literature and scientific lectures prepared by Audio-Digest Foundation, a subsidiary of the California Medical Association, are offered on free loan for individual or group listening from our Film and Recorded Tape Library.

These recordings cover a wide field of interest to all members of the medical profession and medical students, and include, amongst guest lecturers, some of the leading men of medicine and surgery in the United States of America.

Further information and a catalogue of recordings available will be supplied on request from: Squibb Laboratories (Pty.) Ltd., 507 Pharmacy House, 80 Jorissen Street, Braamfontein, Johannesburg. Telephone: 835-1705.

R. Neesham
Squibb Laboratories (Pty.) Ltd.

P.O. Box 9975
Johannesburg
16 April 1959

THE TREATMENT OF MINOR MENTAL ILLNESS

To the Editor: Some of the statements in Dr. Walton's contribution[1] on *Psychiatric Services in General Hospitals* appear almost to exceed the bounds of medical etiquette. He writes: 'Can we be content to send our patients to the mental hospitals when we know that overcrowding and *inadequate treatment* (italics mine) makes for . . . ' etc.; and again, 'The 10 mental hospitals . . . are a monument to the disregard of the principles that the best psychiatric treatment is that given while the patient can still function in the community'. These remarks seem to suggest that in Dr. Walton's opinion, the medical staff in the mental hospitals (note the plural) are incompetent and ignorant of the progress of modern psychiatry. Dr. Walton might do well to remember, while proclaiming the emminence of the neo-super-psychiatry from his little ivory tower, that disparaging contempt of his colleagues, whether inside or outside mental hospitals, is not a good foundation on which to plan cooperative mental health. Such a 'holier than thou' attitude engenders only resentment, and the patients are the sufferers. The doctors in the mental hospital service are also bound by the obligations of medical ethics, and it ill-becomes Dr. Walton to imply by insulting innuendo, that they neglect their duty in this respect.

M.O. Mental

P.O. Box 180
Grahamstown
20 April 1959.

1. Symposium (1959): S. Afr. Med. J., 33, 270.

ECTOPIC PREGNANCY IN A TUBE INFESTED WITH BILHARZIA

To the Editor: In the *Journal* of 14 March Dr. M. G. H. Mayat[1] of Durban, reports an ectopic pregnancy in a tube infested with bilharzia. May I make a few comments on this very interesting article?

On page 220, under 'Distribution of bilharzia', Dr. Mayat says '*S. mansoni* . . . is rarely found in South Africa'. This is no doubt true in Natal, but from personal experience of several hundred cases of schistosomiasis in the Eastern Transvaal, I can assure Dr. Mayat that 1 in 3 patients had either haematobium infection plus mansoni, or mansoni alone. It is true that mansoni need hardly be considered in the causation of salpingitis. With reference to the section 'Symptoms and signs of bilharzial salpingitis', I should like to point out that in my experience bilharzial salpingitis is often completely symptomless but, a common cause of sterility. On several occasions I have found schistosome ova in curettings from the uterine cavity. Urinary and/or bowel symptoms usually predominate in schistosomiasis. I agree with Dr. Mayat that sodium antimony gluconate is probably the best drug to use in the treatment of bilharziasis but, as the author says, though paroxysms of coughing are rare when this drug is used, I can assure him that vomiting is, at least in my experience, quite common. A symptom which he does not mention, but which I have not uncommonly found, is muscular pain and arthralgia when sodium antimony gluconate is used. This also occurs with other antimony compounds.

Finally, I would congratulate Dr. Mayat on his concise and clear case report.

W. E. Laufer

50 Manor Place
Edinburgh 3, Scotland
21 April 1959

1. Mayat, M. G. H. (1959): S. Afr. Med. J., 33, 219.

CORONARY ARTERIES OF THE BANTU HEART

To the Editor: Ten years ago I published a preliminary report of an anatomical study of the coronary arteries in the Bantu.[2] I should like to point out that the thesis put forward on the basis of this study was that the Bantu heart *may* have a more readily available source of collateral circulation, and that this would modify the effects of coronary artery occlusion leading to a lower incidence of cardiac infarction in the Bantu.

At that time no attempt had yet been made to explain the low racial incidence of cardiac infarction in the Bantu. Not only was research in this field not being conducted in South Africa at all, but, apart from the data of Becker,[1] no comment had as yet been made on this low incidence. My paper, therefore, high-lighted this problem and I hoped that further work would be stimulated. Owing to certain circumstances, I was not able to pursue these anatomical studies, and was therefore glad to hear that others had taken up the matter.

I had hoped that Dr. Singer's work[4] would provide a final answer to the question whether such a favourable coronary pattern did in fact exist in the Bantu. Unfortunately, his method of investigation and his incorrect checking of data not only leaves the problem unanswered, but also gives rise to the belief that his claims for the non-existence of such a pattern have been proved.

A dissection technique is not comparable to a radiographic technique which makes it possible to visualize completely and in great detail both right and left coronary arteries and their branches. I quote Schlesinger[3] who reviewed all existing techniques carefully: 'Unaided manual dissection is difficult, time-consuming, and always incomplete, and its value varies with the care with which it is carried out. Much misinformation based on the results of such incompletely and carelessly performed dissection has crept into the literature.' Formalinized cadaver specimens, too, must make accurate identification of individual branches even more difficult than the study of fresh specimens.

The 'third primary division', as I named this artery, is not merely significant with reference to its site of origin but, on the basis of careful investigation, I believe it to be an *additional* branch over and above branches 12 and 14 of Spalteholz.[5] Dr. Singer, for unknown reasons, wishes to rename these latter branches a major and a minor left ventricular artery. That the third primary division was a replacement of branches 12 or 14 was recognized by me, and, in those patients where this happened to be the case, the anatomical findings were described separately. Without determining the presence or absence of branches 12, 14 and the remaining branches, one cannot be certain whether the branch arising close to the orifice of the left coronary artery is an additional branch. The dissection method of study of cadaver specimens is an inadequate approach in comparison with the Schlesinger technique. The care, moreover, with which Dr. Singer carried out his dissection is subject to doubt in view of the following two considerations:

1. Dr. Singer's failure to have grasped the meaning of a 'high-terminating anterior descending branch' is astonishing. A high-terminating branch is a long branch, not a short one, and is the terminal part of the secondary division of the anterior descending coronary—branch 13 of Spalteholz. This branch pursues a course around the apex of the heart terminating high up posteriorly. Dr. Singer has checked the length of branch 12, or the primary division of the anterior descending branch, which he calls the major left ventricular artery. He also is under the impression that 'high-terminating' means a short artery. In saying that a short major left ventricular artery constitutes the majority of Brink's cases of high-terminating anterior descending branch,[1] he is making a completely erroneous comparison, and is indeed showing that he has not been able to comprehend the significance of a longer branch which could act as a greater source of collateral supply. The termination of this vessel, too, could not easily be studied on cadaver specimens.

2. The feature of right coronary preponderance was apparently not investigated by him. Schlesinger's criteria for right preponderance is that the right coronary artery alone should contribute to the formation of a posterior descending coronary vessel, as visualized roentgenographically. The statement that Schlesinger meant that the right coronary artery also supplies part of the left ventricular wall posteriorly in the region of the septum, is therefore incorrect. This may be the meaning of right

coronary preponderance according to the other authors quoted by Dr. Singer. However, right preponderance was not claimed as a particular feature of the Bantu heart. Schlesinger described right preponderance as being present in 48% of his series. It was considered part of the pattern in the Bantu, permitting a greater collateral blood supply.

The italicizing of 'the great majority' in my earlier sentence: 'The great majority of Bantu hearts so far studied has been shown to belong to the right coronary pattern', and the comment that 'as he only studied 15 specimens, this is an invalid generalization', must be considered unfair comment rather than scientific observation, since the generalization is in terms of my own 15 cases, as stated.

The presence of emotive phrases together with erroneous comparisons, and the failure to study all the aspects of the problem detract greatly from what could have been a valuable contribution.

Since Dr. Singer's report was read at the South African Medical Congress in Pretoria in 1955 and, in a modified form before the Anatomical Society of Great Britain and Ireland in London in September 1957; and since he has had the work abstracted in the *Journal of Anatomy*, I feel he should correct his statements. Reference to my paper in *Clinical Proceedings*[2] may serve to make it clear that the facts in this preliminary report have not yet been re-investigated, and that this is necessary since it was clearly stated that 'a pattern may have been described'.

A. J. Brink

Department of Internal Medicine
Karl Bremer Hospital
Bellville, Cape
14 April 1959

1. Becker, B. J. P. (1946): S. Afr. J. Med. Sci., **11**, 1.
2. Brink, A. J. (1949): Clin. Proc., **8**, 137.
3. Schlesinger, M. J. (1940): Arch. Path., **30**, 403.
4. Singer, R. (1959): S. Afr. Med. J., **33**, 310.
5. Spalteholz, W. (1924): *Die Arterien der Herzwand*. Leipzig: S. Hirzel.

SOLID FOOD FOR BABIES

To the Editor: It seems that my paper on *Solid Food for Babies*[1] elicited a number of hostile reponses.[2-4] I wonder if I may follow up my first letter[5] and reply to all the critics?

I have already commented briefly[5] on Professor Ford's sarcastic missive which is long in verbal histrionics, but mighty short in facts.

Mr. A. Lazarus[3] chides me for omitting an account of the allegedly dire psychological consequences of feeding solid food to babies. I did not deal with this subject because it did not cross my mind. Even if it had, I should still not have mentioned the matter since I am not competent to discuss it. I note the reference given is to a paper written in 1932 and I wonder how much relevance it can have to feeding practices in 1959.

Dr. Kahn's reasoned comments[4] express the genuine doubts of a well-informed opinion and must be dealt with at some length. He wonders just how much we can permit infants to do, and illustrates his point with an unusual bit of news: it seems that a 2-year-old American child was permitted to smoke 4 cigarettes daily. I can match his levity. About a year ago there was a short note in *Time* magazine concerning a 4-year-old child in Miami who sat on his father's lap and steered his automobile. When apprehended by a policeman, the indignant father exploded: 'But he's been driving since he was 2 years old'!

How young must an infant be before we say 'Halt! This is really going too far'? Actually, this is a decision which we, as doctors, should not make; it is made for us by the infants themselves. As I have pointed out in my paper, a minority of infants refuse most solid foods until 3 months or even much later. Also, as stated, eggs are often disliked, and to a lesser extent, the baby meats.

It seems to me that this problem is basically an historical one, and will be resolved within an historical setting. I have devoted a good deal of space in my paper to illustrate the historical processes leading up to the present concepts, for today's practices are grounded on yesterday's prejudices. This important point has been well made in a splendid passage by Forsyth[6] which I cannot forbear to quote:

'Our 20th century methods, be it understood, are not of 20th century make. They are covered with the finger-nails of old-time gossips and dented with the prejudices of half a dozen centuries. If history told us nothing more than this it would still teach us that today we are watching a passing stage of a developing subject. It should, however, do more than this; by tracing the route we have already travelled, it points the direction towards which we are moving.'

The increasingly younger ages at which solid foods have been introduced illustrate not so much scientific advance as historical progression. The historical process draws inevitably to a conclusion, and 3-4 months is no conclusion. The end is birth, and it will not be too many years before it is admitted that it is perfectly proper to give 'solids' (rather a misnomer considering their semi-fluid state) shortly after birth to those infants who will take them. When this point is finally reached, the novelty will wear off, and it will cease to be a matter of contention, and even of interest, and will be accepted for what it is—a point of little consequence. I have already written that the future mother, asking her doctor at what age she can introduce solids, will get the reply, 'Whenever you feel like it; it's not an important question'. The importance of solid foods becomes increasingly cogent with increasing age, and is of decreasing significance with decreasing age, reaching a value of zero at birth.

Thus, in the first few months of life, the use of solids is really an unimportant matter, and there is no need to get enthusiastic over unimportant matters. On the basis of my paper (where I write that I introduce solids as early as 10 days or as late as 3 months—depending on circumstances) I can hardly be accused of enthusiasm. I have not written a panegyric of early solid feeding. I have written a largely historical account of the subject, and it can readily be seen that the advantages cited in my paper are pretty subdued. I practise early solid feeding because I think it is generally beneficial and because it is an inevitable historical process—assuming, of course, that I have interpreted history correctly.

It is of interest to note that the paediatric text-books of 40 and 50 years ago spent many pages decrying the use of the, then recently introduced, cereal foods. To the modern eye, these arguments seem foolish. In like manner opposition to the proprietary 'meat pastes' is futile. They are here to stay and they serve a useful purpose.

It is also of interest to note that the Committee on Nutrition of the American Academy of Pediatrics, while generally cool to the idea of early feeding of solids, does not place the limit of solid feeding at 3-4 months. I note that they have made an extension to 2½ months.[7] It should not be too long before the wise are wrangling at the 2-month limit.

The present position seems to be summarized by Dr. S. Gellis,[8] who opines that he is not impressed with the arguments of those who are zealots for early feeding. Nor is he impressed with the arguments against such a practice. This is doubtless the correct summing-up, for the whole problem is not really of any great importance.

What is assuming greater importance, however, is the role of the kidney in infant nutrition.[9] Until this enigma becomes clarified, it is correct, I think, to heed the dictum in my paper, 'variety is more important than quantity'.

Finally, I may note that after some experimentation, it has become my practice to offer fruits, chocolates and custard first for a period of about a week, then vegetables for another week, then the various meat pastes, and finally eggs, fish, sardines, cheese and peanut butter. Cereals come last, and sometimes not at all.

May I take this opportunity to congratulate Dr. Kahn on the latest addition to his family, and suggest that he put the infant on banana forthwith!

S. Levin

67 Jenner Chambers
Jeppe Street
Johannesburg
8 April 1959

1. Levin, S. (1959): S. Afr. Med. J., **33**, 149.
2. Ford, F. J. (1959): *Ibid.*, **33**, 239.
3. Lazarus, A. (1959): *Ibid.*, **33**, 263.
4. Kahn, E. (1959): *Ibid.*, **33**, 263.
5. Levin, S. (1959): *Ibid.*, **33**, 304.
6. Forsyth, D. (1911): Proc. Roy. Soc. Med., **4**, 110.
7. Hill, L. F. *et al.* (1958): Pediat., **21**, 685.
8. Gellis, S. S. (1958): *The Year Book of Pediatrics*. Chicago: The Year Book Publishers.
9. Fomon, S. *et al.* (1959): Pediat., **23**, 113.